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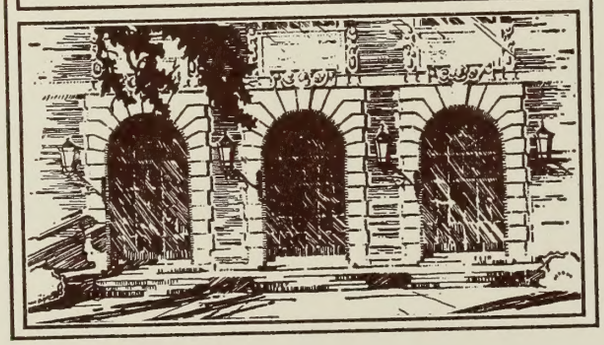

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WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.

and

DEPARTMENT of WATER RESOURCES STATE of WASHINGTON

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
FEB. 1, 1970

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P O Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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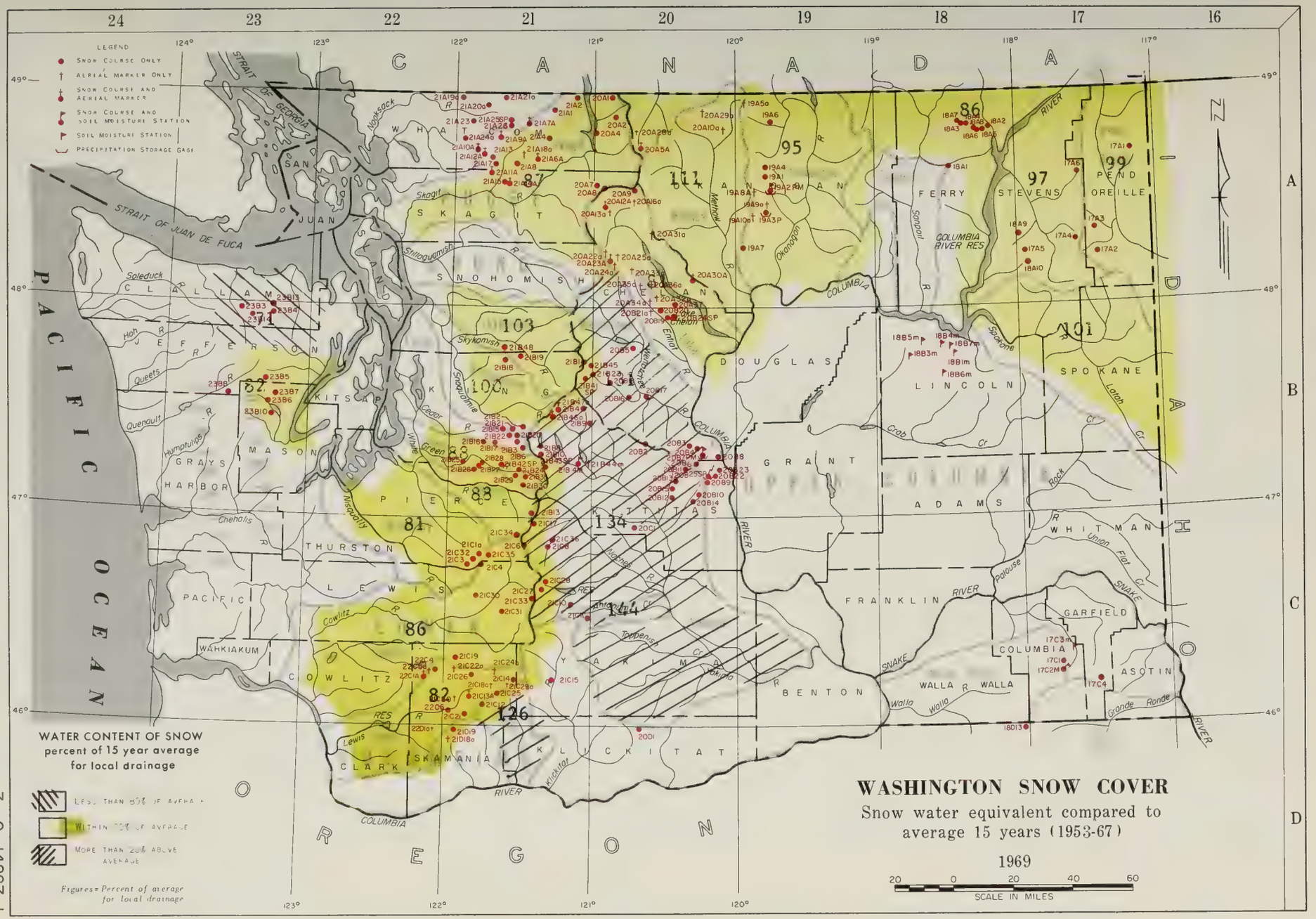

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2070

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	26	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3545
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4025
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5205
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	2 A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3230
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310

Clockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clockum Creek	20B22	11	21N	20E	5310
Clockum Creek No. 2	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2365
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	2100
Big Boulder Creek	21B9	35	23N	14E	3400
Bumping Lake	21C8	23	16N	12E	3465
Bumping Lake New	21C36	13	16N	12E	3400
Clockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4100
Domery Flat	21B44m	15	20N	14E	[illegible]
Fish Lake	21B4	34	24N	14E	3970
Green Lake	21C10	3	12N	13E	[illegible]
Grouse Camp	20B11	24	21N	16E	5435
High Creek	20B12	34	21N	14E	2440
Joe Lake	21B4 a	22	23N	12E	4424
Lake Cle Elum	21B14M	16	20N	14E	[illegible]
Lemah Creek	21B47a	7	23N	13E	3327
Manashtash	20C1	24	17N	16E	3435
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	4275
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C29	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	5N	42E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pintail Peak	21C33	11	13N	11E	5000
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2060
Paradise Park (New)	21C25	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5300
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3400
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	14E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A6	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	21	39N	9E	4800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Mazama Park	21A24a	2	37N	7E	4500
Panorama New	21A26	17	38N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	29	28N	6W	
Deer Park G. S.	23B13	1	28N	5W	4850

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

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WATER SUPPLY OUTLOOK

State of Washington
February 1, 1970

* *

The water supply outlook for irrigation and power in the Columbia Basin in Washington and on its tributary streams is slightly below normal. The central area of the state is the bright spot having generally above-normal snowpacks. Snow surveys made in the state and adjacent areas indicate the snowpack ranges from 40 percent below normal on the Elwha River drainage in the Olympic Peninsula to 44 percent above normal on the Ahtanum Creek watershed, a tributary to the Yakima River. There seems to be a slight polarization in the snowpack as of February 1. Conditions along the northern boundary and in Canada are not as good as can be found along the southern portions of the state and through the central area mentioned above. The higher elevation snowpacks also do not seem to be as good as those in the medium elevation areas.

Precipitation over the state, as measured at valley stations during January, were well above normal but this occurred primarily in the latter half of the month. This precipitation did not overcome the deficit that occurred during the previous two to three months. Fall precipitation was close to normal while the winter precipitation was above normal only in the southeastern portion and the northcentral area. Franklin D. Roosevelt Lake is the only power reservoir in the state that has above-normal water in storage as of February 1. Irrigation reservoirs generally have below normal water in storage as of this date but should fill with the anticipated runoff this coming spring.

* *

SNOW COVER

Compared to last year every watershed in the state has much less snow as of February 1. Compared to 1968 this snowpack varies from 25 percent below to 181 percent above. These extremes were measured by only one snow course in each of these two watersheds. Comparing this snowpack to normal most of the watersheds can be considered normal with the exception of the Entiat, Wenatchee, Yakima, Ahtanum, and White Salmon. These have well above-normal snowpacks as mentioned above. The Elwha on the Olympic Peninsula has a snowpack that is only 60 percent of normal.

RESERVOIRS

The irrigation picture in the state can be considered only fair as of this time. While it is expected that all irrigation reservoirs will fill, normal and above precipitation will have to occur between now and the start of the runoff season. The five Yakima reservoirs are 43 percent of capacity and 73 percent of average for

this time of year. Conconully Reservoir in the Okanogan watershed is the only one that has above-normal amounts of water in storage. The power reservoirs of Coeur d'Alene Lake and Franklin D. Roosevelt Lake have greater than normal amounts of water in storage while Lake Chelan and Ross Reservoir have less than normal amounts of reservoired water.

PRECIPITATION

The preliminary analysis by the United States Weather Bureau of valley precipitation indicates that during the September-October period rainfall was slightly above normal. Rainfall was 22 percent above normal in the Columbia River drainage in Canada; 29 percent above in the northeastern portion of the state and 44 percent above normal in northcentral Washington. Along the northwestern slopes of the Cascades precipitation was 5 percent above normal and 24 percent above in the lower Columbia drainage. Central Washington had the least amount of precipitation during this period -- 14 per cent below normal. Precipitation during the past month ranged from a low of 80 percent of normal at Paradise Ranger Station to a high of 177 percent above normal at Coulee Dam. In the Yakima drainage the Bureau of Reclamation reports that precipitation at the five reservoirs was 52 percent above normal but since the period of September 1 averaged only 82 percent of normal.

SOIL MOISTURE

The soil moisture in the soil mantle reflected the lack of precipitation during the latter part of the summer and early fall periods. At lower elevations the recent heavy precipitation has improved this situation until at the present time the conditions are very close to normal for this time of year. Some areas have reported more moisture in the soils than measured in the last couple of years while others had a reverse affect. Our records are not sufficiently long to have an average condition determined in the soil moisture but the fall precipitation has always been a reasonably good indicator of this situation.

STREAMFLOW

As usual for this time of year runoff ranges from very high to very low. In this case the Upper Columbia had below normal runoff during January starting with 93 percent of normal at Birchbank and decreasing to 89 percent of normal below Rock Island below Wenatchee. With the high input flows of the Snake River the resultant flow of the Columbia River at The Dalles was 23 percent above normal. The Snake River as measured at Clarkston was 55 percent above normal and the Walla Walla at Touchet measured 115 percent above normal. Most streams flowing into the Columbia from Washington and Oregon along the southern edge had well above-normal runoff. Peshastin had the lowest runoff during the month of any station in the state--49 percent below normal. The only forecast made for the

state of Washington on February 1 is the April-September and April-June forecast for the Columbia River at The Dalles. This early in the season we expect that The Dalles will have a flow of 94,000,000 acre-feet during the April-September period. This is 89 percent of normal. The April-June forecast is for 63,000,000 acre-feet or 87 percent of normal.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1970, as per cent of the same date in 1969 and 1968 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1970 Snow Water Expressed as per cent of 1969	1968	1953-67 Avg.
		UPPER COLUMBIA BASIN			
Pend Oreille	6 - 8	6 - 33	65	97	99*
Kettle	11 - 14	4 - 30	60	87	86*
Colville	2 - 5	8 - 11	58	95	97*
Spokane	3	8 - 25	58	129	101
Okanogan	21 - 24	3 - 32	76	98	95
Methow	9	7 - 32	74	107	111
Chelan	1	16	61	75	81
Entiat	1 - 2	3 - 9	80	141	143
Wenatchee	7 - 9	2 - 25	82	181	131
Yakima	15 - 22	2 - 48	91	179	134
Ahtanum	1	28	80	158	144
		LOWER COLUMBIA			
Klickitat	1	12	81	281	--
White Salmon	2	12	62	108	126
Lewis	14 - 17	7 - 12	47	78	82
Cowlitz	8 - 9	6 - 18	62	130	86
		PUGET SOUND			
Nisqually	3 - 4	4 - 13	76	172	81
White	1	18	77	107	88
Green	5 - 8	8 - 23	48	160	88
Snoqualmie	1	20	63	159	100
Skykomish	1 - 2	2 - 25	68	199	103
Skagit	1 - 7	12 - 22	66	70	87
		OLYMPIC PENINSULA			
Skokomish	4 - 5	6 - 12	57	70	82
Elwha	1	10	49	71	60
Dungeness	1	16	66	110	82

RESERVOIR STORAGE - 1000 Acre Feet

ASIN or TREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1970	1969	1968	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	161.1	134.1	93.8	137.0
Columbia	Franklin D. Roosevelt Lk	5232.0	4449.4	2430.3	2485.1	3812.5
Columbia	Banks Lake	761.8	597.3	714.9	714.9	494.0
Okanogan	Conconully Reservoir	13.0	7.0	4.3	6.3	5.6
Okanogan	Salmon Lake	10.5	7.8	6.4	9.0	8.6
Chelan	Lake Chelan	676.1	187.8	254.4	461.4	318.4
		YAKIMA				
Yakima	Keechelus Lake	157.8	50.3	105.0	126.1	92.1
Kachess	Kachess Lake	239.0	166.9	194.0	211.3	172.2
Cle Elum	Lake Cle Elum	436.9	155.6	253.3	372.1	241.1
Bumping	Bumping Lake	33.7	9.1	4.2	16.9	9.9
Tieton	Rimrock Lake	198.0	75.9	135.7	130.4	111.3
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	849.3	835.7	1212.6	956.3
Skagit	Diablo Reservoir	90.6	83.6	82.6	86.0	85.6
Skagit	Gorge Reservoir	9.8	7.5	8.2	7.9	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - February

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Feb. 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	8.3	8.9	7.4
Krause	18B4m	2440	48	13.6	7.2	7.9	5.7
Sheffels	18B5m	2360	48	13.6	6.1	5.8	4.9
Sherman	18B7m	2440	48	13.6	6.6	5.8	5.9
Wheatridge	18B6m	2200	48	13.6	8.4	6.5	6.1
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.1	3.0	2.8
Trout Creek	3-M	3600	48	7.3	3.0*	2.8	4.7**
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	5.7	4.5	4.8
Lake Cle Elum	21B14M	2200	48	12.8	9.1	9.1	9.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	Not Measured	10.2	7.5
Helmers	17C2M	4400	48	12.0	Not Measured	10.7	11.2
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.8	8.7	10.0

* January 1 measurement
** December 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1969	1968	1967
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.5	7.1	5.2
Krause	18B4m	2440	48	13.6	5.9	5.2	4.9
Sheffels	18B5m	2360	48	13.6	4.5	4.9	3.7
Sherman	18B7m	2200	48	13.6	4.2	3.9	3.6
Wheatridge	18B6m	2200	48	13.6	5.4	4.6	4.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.7	2.7	1.5
Trout Creek	3-M	3600	48	7.3	3.8*	4.1	4.0
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	Not available	3.1	4.8
Lake Cle Elum	21B14M	2200	48	12.8	Not available	5.2	9.1
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.1	7.4	5.4
Helmers	17C2M	4400	48	12.0	7.1	7.6	6.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.8	5.5	5.6

* November 1 measurement

PRECIPITATION 1/

Division Averages and Departures

Drainage Divisions	FALL Sep - Oct 1969 2/ Average	Departure	WINTER Nov - Dec 1969 - Jan 1970 2/ Average	Departure
Columbia in Canada	4.73	+0.84	7.34	-1.72
Pend Oreille - Spokane	3.81	-0.07	11.13	-1.34
Northeastern Washington	2.91	+0.66	7.07	-0.67
Southeastern Washington	2.56	-0.09	9.68	+1.26
Central Washington	3.83	-0.61	18.50	-1.19
North Central Washington	2.02	+0.61	4.86	+0.28
Northwest Slope Cascades	12.20	+0.53	29.24	-6.39
Southwest Slope Cascades	9.55	+1.83	27.25	-0.90

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse drainages.
Central Washington	- Yakima, Wenatchee and Chelan drainages..
North Central Washington	- Methow and Okanogan drainages.
Northwest Slope Cascades	- Puget Sound drainages.
Southwest Slope Cascades	- Lower Columbia drainages.

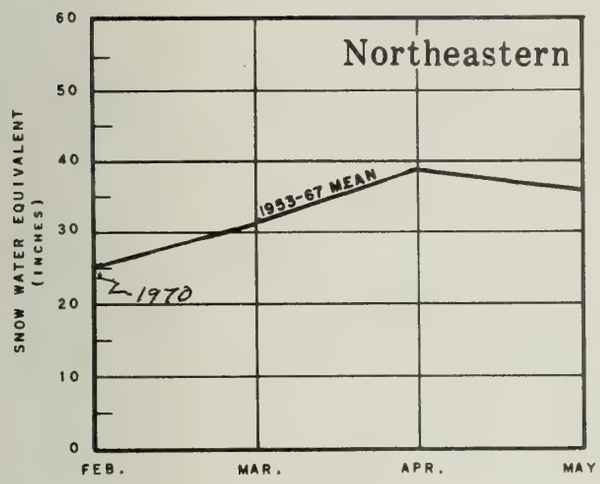
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

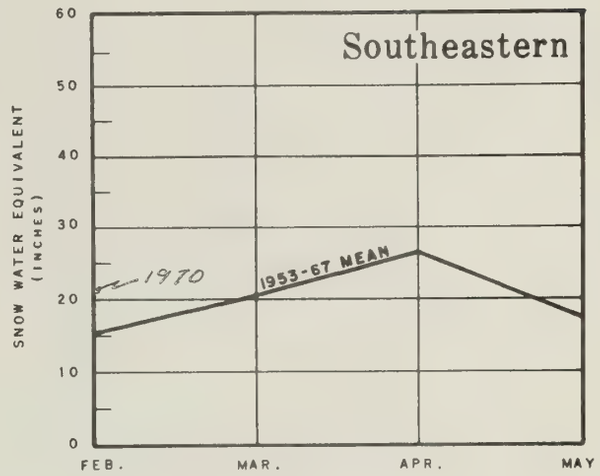
2/ - Departure from 15-year (1953-67) drainage division average.

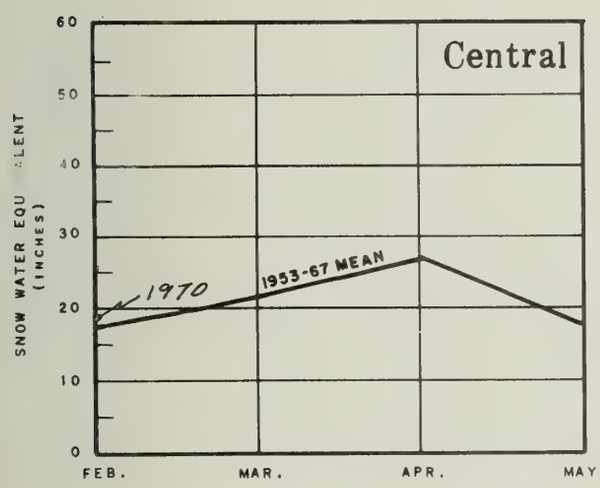
WASHINGTON SNOW COVER

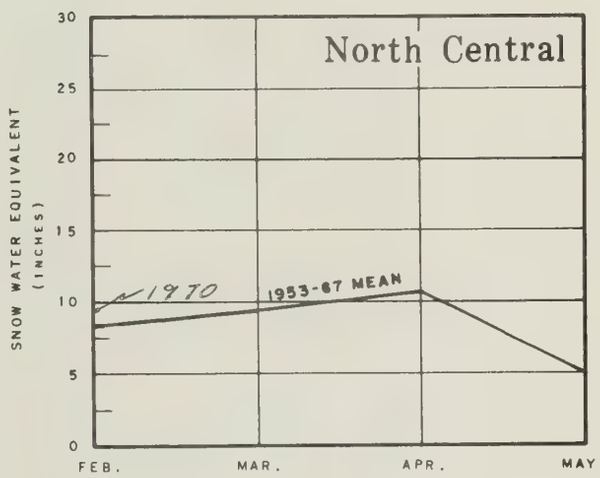
1970

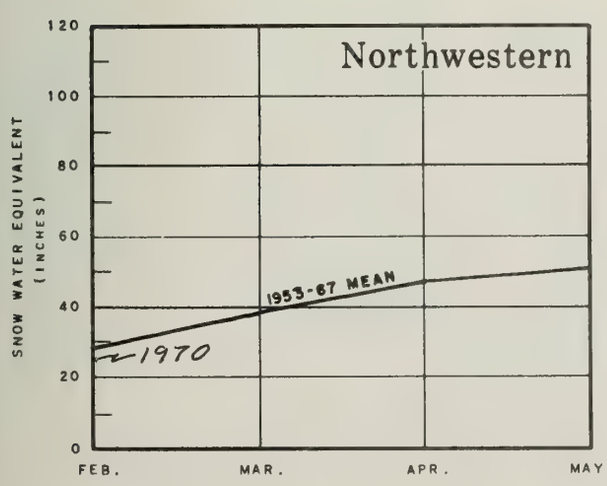
DRAINAGE AREAS

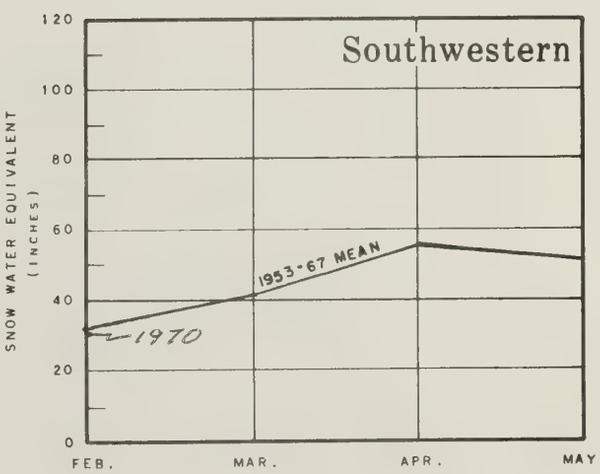










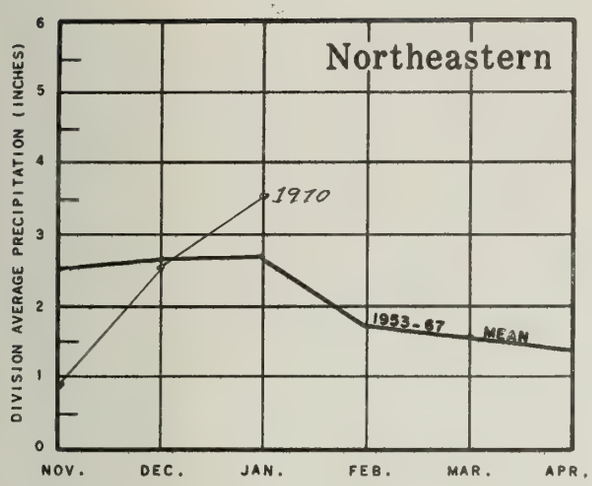


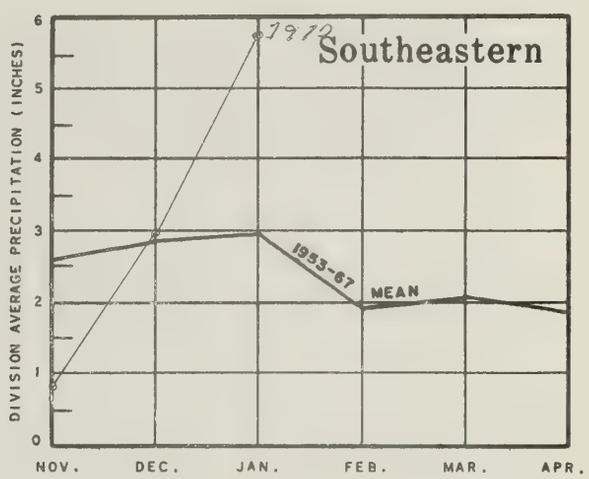
Selected Snow Survey Courses by Soil Conservation Service

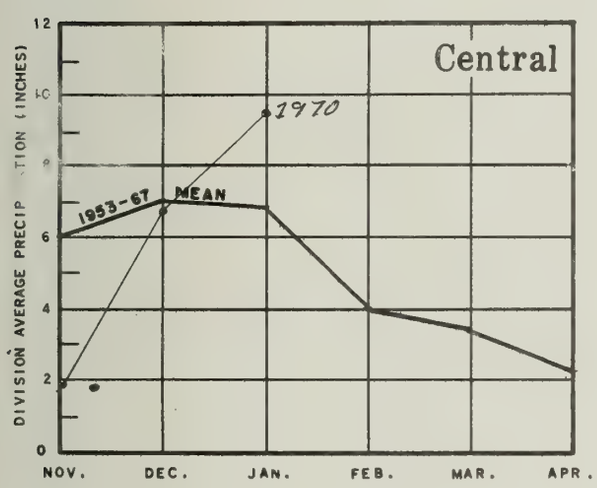
WASHINGTON VALLEY PRECIPITATION

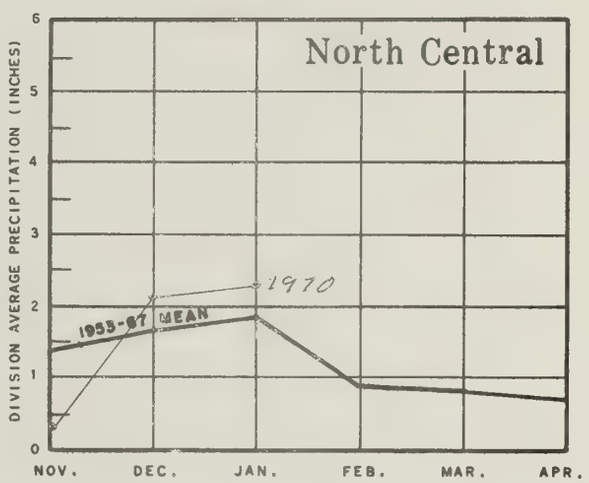
1969-1970

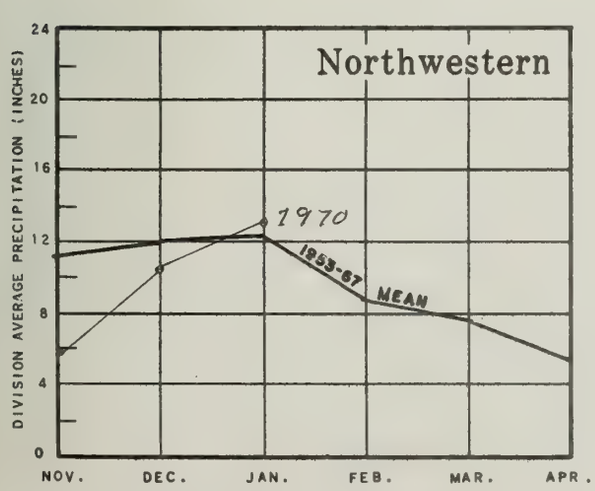
DRAINAGE AREAS

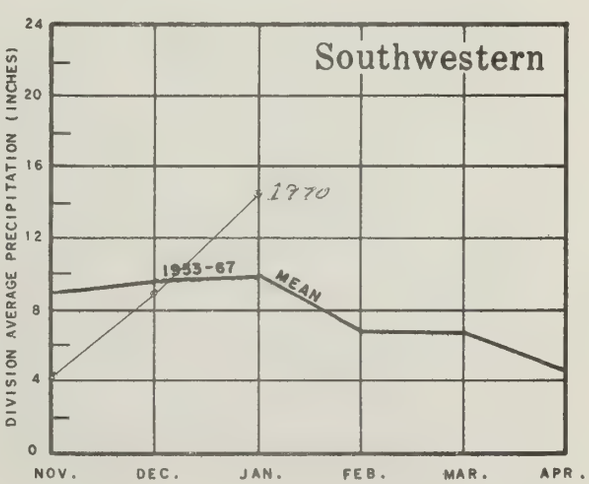












Preliminary Analysis by U. S. Weather Bureau

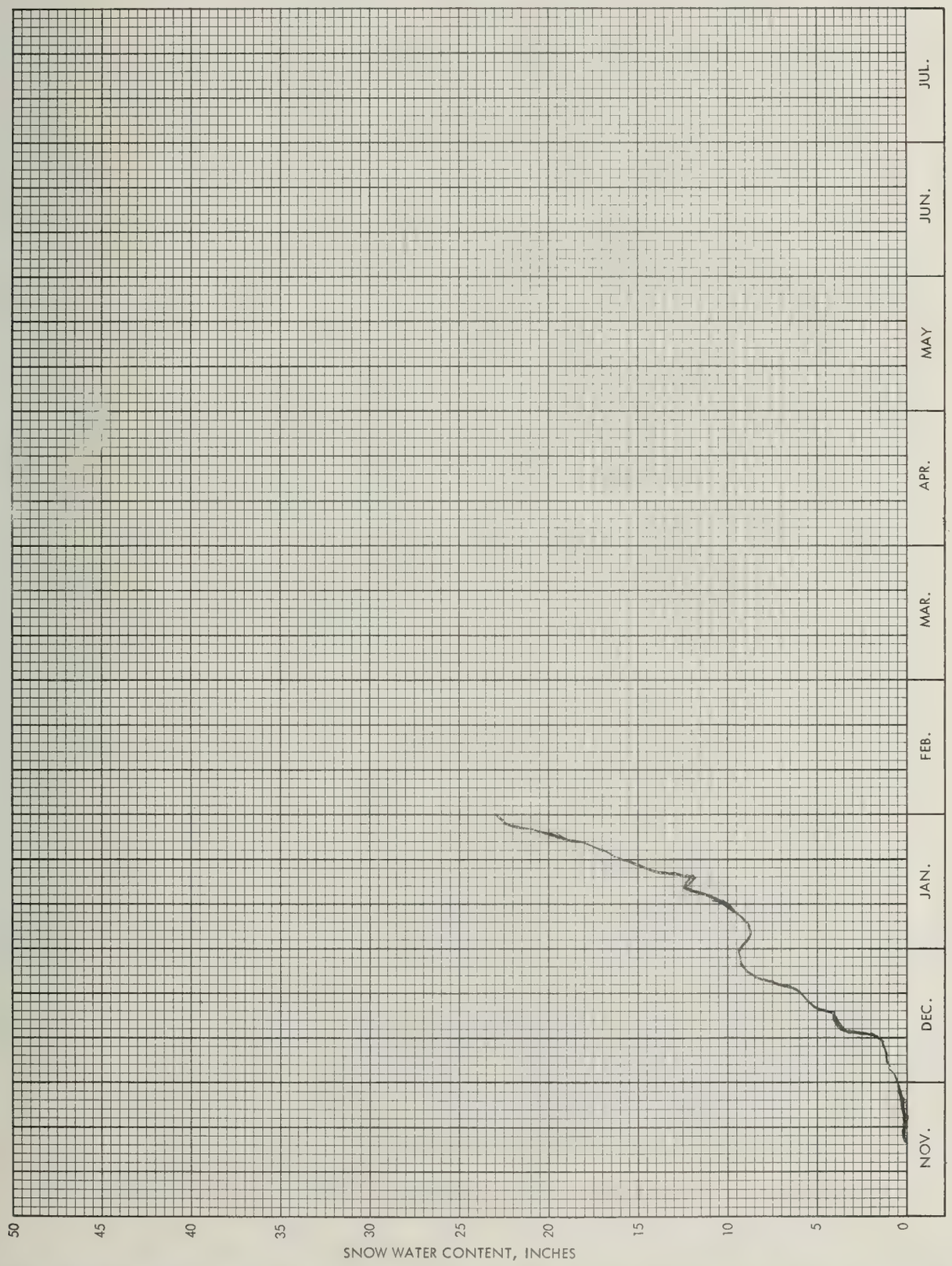
1969-70

SNOW PILLOW DATA

Berne-Mill Creek

Sec. 13 T. 26N R. 14E No. 21E41SF Drainage: Wenatchee

Lat. 47° 46' Long. 121° 01' Elev. 3170

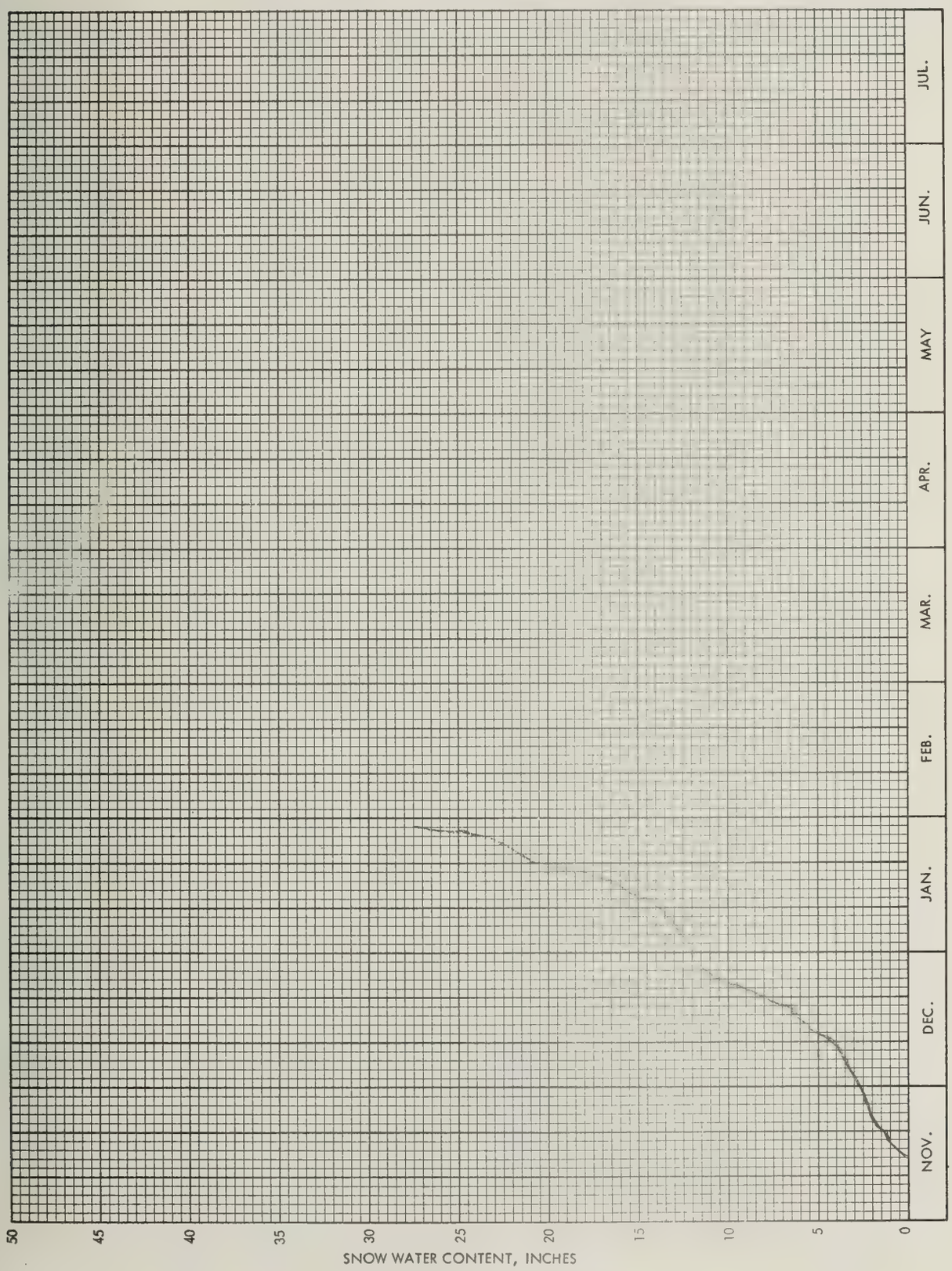


SNOW PILLOW DATA

Snowshoe Butte [illegible]

Sec. 28 T. 21N R. 9E No. 2184[illegible] Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 50[illegible]



WSFB-X4

SNOW DATA TO FEBRUARY 1, 1970 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Benton Meadow	16A2	2344	12/30	10	2.4	3.7	3.2
			2/1	33	8.3	10.4	5.1
Benton Spring	16A3	4900	12/30	18	3.8	9.1	8.6
			1/30	47	11.2	18.0	14.0
#Chewelah	17A4	4925	1/31	48	10.5	--	13.2*
Lookout	15B2	5250	12/31	36	9.0	18.8	15.7
			2/2	88	24.5	38.7	25.0
Nelson	Canada	3050	1/30	38	8.9	15.0	12.2
Schweitzer Bowl	16A6	4500	12/30	33	7.7	18.5	--
			1/30	71	21.0	28.8	--
Schweitzer Ridge	16A5	6100	12/30	46	12.0	29.7	--
			1/30	83	23.7	52.0	--
Winchester Creek	17A3	2970	1/29	41	9.4	13.3	9.2*
KETTLE RIVER							
[illegible]g White Mountain	Canada	5500	2/1	41	9.4	16.0	--
Boulder Raod	18A2	1450	10/29	0	0.0	0.0	--
			11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	--
			12/11	4	0.5	1.0	--
			12/23	6	1.7	3.3	2.1*
			1/13	9	1.9	6.1	3.4*
			1/26	13	4.0	6.9	4.1*
Butte Creek	18A3	4070	10/29	0	0.0	0.0	--
			11/12	0	0.0	1.9	--
			11/24	0	0.0	2.0	1.5*
			12/11	6	0.7	4.1	2.9*
			12/23	17	3.0	7.6	4.3*
			1/13	18	2.6	9.4	5.8*
			1/26	27	6.0	9.9	6.6*
Cabin Creek	18A8	3170	10/29	0	0.0	0.0	--
			11/12	0	0.0	1.7	--
			11/24	0	0.0	1.2	1.1*
			12/11	6	0.8	3.1	2.4*
			12/23	17	3.7	6.2	4.2*
			1/13	16	2.8	9.0	5.5*
			1/26	26	5.3	9.2	6.0*

\# Not located directly on this drainage

* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
KETTLE RIVER (Cont.)							
Carmi	Canada	4100	2/1	20	4.6	6.6	5.4**
Farron	Canada	4000	1/30	32	7.7	15.3	10.0
Goat Creek	18A4	3595	10/29	0	0.0	0.0	--
			11/12	0	0.0	1.4	--
			11/24	0	0.0	0.1	1.0*
			12/11	6	0.5	2.8	2.1*
			12/23	17	3.4	6.4	3.7*
			1/13	16	2.5	7.9	4.9*
			1/26	27	6.0	8.8	5.5*
Lower Trapping Creek	Canada	3050	2/1	20	3.8	6.4	4.8**
#Monashee Pass	Canada	4500	1/26	24	6.4	10.3	9.9**
Old Glory Mountain	Canada	7000	2/1	48	13.0	28.0	18.2
Snow Caps Creek	18A5	2150	10/29	0	0.0	0.0	--
			11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	--
			12/11	6	0.7	1.5	--
			12/23	8	2.7	4.2	2.3*
			1/13	12	2.5	6.3	3.5*
			1/26	18	5.0	6.9	4.3*
Snow Caps Trail	18A6	2720	10/29	0	0.0	0.0	--
			11/12	0	0.0	1.0	--
			11/24	0	0.0	0.2	--
			12/11	6	0.8	2.6	1.7*
			12/23	13	3.0	5.3	3.0*
			1/13	14	1.6	7.4	4.0*
			1/26	21	4.8	8.0	4.9*
Summit G. S.	18A7	4600	10/29	0	0.0	0.0	--
			11/12	0	0.0	2.1	--
			11/24	0	0.0	2.1	1.7*
			12/11	5	0.7	3.3	3.0*
			12/23	14	2.7	5.4	4.3*
			1/12	16	2.9	7.6	5.9*
			1/26	23	4.7	8.0	6.7*
Upper Trapping Creek	Canada	5500	2/1	27	5.6	9.1	7.4*

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-67 period

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
COLVILLE RIVER							
Baird	17A6	3215	2/1	29	5.6	9.0	5.9*
Carlson	18A9	2885	2/1	22	4.2	7.8	4.3*
Chewelah	17A4	4925	1/31	48	10.5	--	13.2*
Stranger Mountain	17A5	4990	1/31	46	10.0	--	9.8*
Togo	18A10	3370	2/1	39	9.3	--	8.6*
SPOKANE RIVER							
4th of July Summit	16B3	3100	12/31	11	1.8	3.7	3.5
			2/2	32	7.5	14.0	6.4
#Lookout	15B2	5250	12/31	36	9.0	18.8	15.7
			2/2	88	24.5	38.7	25.0
Sherwin	16C1	3200	1/3	18	3.8	5.6	--
			1/31	32	9.3	16.2	10.4
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	1/30	20	4.4	--	5.1**
Blackwall Peak	Canada	6250	1/29	70	19.0	24.8	24.0**
Brenda Mine	Canada	4800	1/26	31	6.8	10.6	--
Brookmere	Canada	3200	1/27	29	6.6	7.1	7.1
Carrs Landing Lower	Canada	2250	1/31	13	2.3	3.1	--
Carrs Landing Upper	Canada	3200	1/31	21	4.1	5.7	--
Clark +	19A8a	7000	Not Measured			--	--
Copper Mountain	Canada	4300	Late Report			5.4	5.0**
Enderby	Canada	6250	1/26	73	20.4	34.0	24.2**
Hamilton Hill	Canada	4900	Late Report			--	9.9**
#Harts Pass	20A5A	6500	1/30	90	26.0	36.7	28.2*
#Horseshoe Basin +	19A5a	7000	2/4	32	8.6	15.4	9.7*
Isintok Lake	Canada	6300	1/31	18	4.4	5.8	5.7**
Lost Horse Mountain	Canada	6300	2/3	23	4.6	6.2	6.3**
#Loup Loup	19A7	4650	1/29	39	9.6	11.6	6.6*
McCulloch	Canada	4200	1/28	23	4.3	5.0	4.8
Missezula Mountain	Canada	5100	Late Report			--	6.2**
Mission Creek	Canada	6000	1/31	38	9.6	16.7	13.3**
Monashee Pass	Canada	6000	1/26	24	6.4	10.3	9.9**
Mount Kobau	Canada	6000	1/29	35	9.6	10.6	--
Muckamuck +	19A9a	6390	Not Measured			--	--
Mutton Creek No. 1	19A1	5700	1/29	43	11.0	15.0	9.7*
Mutton Creek No. 2	19A4	6000	1/29	42	10.6	15.5	10.1*
New Copper Mountain	Canada	4300	2/1	28	6.3	6.5	5.2**
Paysayten +	20A28a	4300	Not Measured			19.2	11.6*
Postill Lake	Canada	4500	1/30	24	5.0	5.7	5.8**
Rusty Creek	19A3	4000	1/28	31	6.6	10.0	5.6

\# Not directly located on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

\+ 1953-67 period

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
Salmon Meadows	19A2	4500	1/29	39	9.2	11.4	7.5*
Silver Star Mountain	Canada	6050	1/30	54	15.2	28.4	18.0**
Starvation Mountain +	19A10a	6750	Late Report			--	--
Summerland Reservoir	Canada	4200	2/1	25	5.9	7.4	7.6**
Touts Coulee	19A6	2845	1/28	23	4.0	4.6	3.1*
Trout Creek	Canada	4700	1/29	22	4.6	5.6	5.3
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	2/4	92	24.8	28.8	21.5*
Dollar Watch +	20A29a	7000	2/4	69	18.6	23.7	18.4*
Harts Pass	20A5A	6500	1/30	90	26.0	36.7	28.2*
Horseshoe Basin +	19A5A	7000	2/4	32	8.6	15.4	9.7*
Loup Loup	19A7	4650	1/29	39	9.6	11.6	6.6*
#Mutton Creek No. 1	19A1	5700	1/29	43	11.0	15.0	9.7*
#Mutton Creek No. 2	19A4	6000	1/29	42	10.6	15.5	10.1*
#Rusty Creek	19A3	4000	1/28	31	6.6	10.0	5.6
#Salmon Meadows	19A2	4500	1/29	39	9.2	11.4	7.5*
#War Creek Pass +	20A31a	6500	Not Measured			37.4	--
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	Not Measured			34.2	27.4*
Greenwood Flat +	20A25a	3540	Not Measured			31.0	21.6*
Little Meadows +	20A24a	5275	Not Measured			41.6	29.9*
Lyman Lake +	20A23A	5900	Not Measured			53.4	38.9*
Park Creek Flat +	20A13a	2220	Not Measured			--	27.8*
Park Creek Ridge	20A12A	4600	Not Measured			46.7	35.3*
Petersons +	20A16a	3730	Not Measured			31.0	26.2*
Rainy Pass	20A9	4780	1/30	81	22.4	36.6	27.5*
Safety Harbor +	20A30A	6300	Not Measured			28.2	--
War Creek Pass +	20A31a	6500	Not Measured			37.4	--
ENTIAT RIVER							
Brief	20B19	1600	1/29	40	9.0	10.1	6.3*
Entiat Meadows +	20A33a	4800	Not Measured			38.2	--
Entiat River Trail +	20A34a	3150	Not Measured			25.7	--
Fox Camp +	20A36a	6510	Not Measured			43.3	--
Pope Ridge	20B20	4300	1/28	64	14.5	20.5	--
Pope Ridge SP	20B24SP	4300	Not Available			--	--
Pugh Ridge +	20A32a	6400	Not Measured			27.7	--
Shady Pass	20A37	6200	Not Measured			--	--
Snow Brushy +	20A35a	3850	Not Measured			31.1	--
Tommy Creek +	20B21a	5300	Not Measured			22.8	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observations
++ 1953-67 period

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	10/29	0	0.0	--	--
			11/14	0	0.0	2.6	1.2*
			12/1	Not Measured		5.0	4.8*
			12/15	21	4.5	11.0	7.3*
			12/30	33	9.2	16.2	11.4*
			1/14	47	11.5	27.2	17.1*
			1/30	80	23.0	30.3	20.7*
Berne-Mill Creek New	21B41SP	3240	10/29	0	0.0	--	--
			11/14	0	0.0	--	--
			12/1	Not Measured		5.0	--
			12/30	35	10.0	16.0	--
			1/30	78	22.4	30.0	--
Blewett Pass No. 2	20B2	4270	12/30	20	4.6	11.7	6.3
			1/30	57	14.8	20.9	11.2
Chiwaukum G. S.	20B16	1810	10/29	0	0.0	--	--
			11/14	0	0.0	--	--
			12/1	Not Measured		1.2	1.7*
			12/15	16	2.7	4.0	2.7*
			12/30	22	5.2	5.6	4.6*
			1/14	32	6.4	11.4	7.5*
			1/29	58	13.4	12.8	9.0*
Lake Wenatchee	20B5	1970	10/29	0	0.0	--	--
			11/14	0	0.0	--	--
			12/1	Not Measured		0.5	--
			12/15	13	2.0	5.0	3.7*
			12/30	19	4.6	7.6	5.8*
			1/14	29	6.1	15.0	9.6*
			1/29	54	13.7	15.6	12.0*
Leavenworth R. S.	20B17	1127	10/31	0	0.0	0.0	--
			11/14	0	0.0	0.0	--
			12/1	0	0.0	0.0	--
			12/11	16	2.0	2.4	--
			12/29	13	4.5	5.4	2.9*
			1/14	24	5.7	7.7	4.0*
			1/27	40	9.7	9.0	5.0*
#Lyman Lake +	20A23A	5900	Not Measured				

\# Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
WENATCHEE RIVER (Cont.)							
Merritt	20B18	2140	10/29	0	0.0	--	--
			11/14	0	0.0	1.0	--
			12/1	Not Measured		2.0	2.9*
			12/15	13	2.4	5.8	4.6*
			12/30	21	5.6	10.2	8.0*
			1/14	32	7.4	19.4	12.0*
			1/29	66	16.4	20.4	14.1*
Stevens Pass	21B1	4070	10/29	0	0.0	--	--
			11/14	0	0.0	7.0	--
			11/26	14	3.1	12.1	10.0*
			12/15	40	8.6	21.9	14.7*
			12/30	64	16.4	29.7	20.8
			1/14	78	21.7	47.5	26.6
			1/29	127	35.3	51.5	34.4
Stevens Pass Sand Shed	21B45	3700	10/29	0	0.0	--	--
			11/14	0	0.0	3.0	--
			12/1	Not Measured		6.8	--
			12/15	29	5.2	14.5	--
			12/30	43	11.4	19.4	--
			1/14	58	15.4	33.6	--
			1/29	97	25.0	37.0	--
COLOCKUM CREEK							
Colockum Creek	20B22	5300	1/29	51	14.3	14.6	--
Colockum Creek No. 2	20B23	4300	1/29	46	12.0	10.2	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	1/27	44	10.4	11.4	5.1*
Scout-A-Vista	20B4	3400	1/27	48	9.8	10.7	5.4*
STEMILT CREEK							
Jump-Off	20B8	4450	1/28	47	10.2	9.8	4.8*
Stemilt Slide	20B6	5000	1/28	53	11.0	15.4	10.0*
Upper Wheeler	20B7	4400	1/28	47	11.6	12.6	6.5*

* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	12/26	22	4.6	4.0	3.2
			1/27	43	8.2	10.2	5.7
#Blewett Pass No. 2	20B2	4270	12/30	20	4.6	11.7	6.3
			1/30	57	14.8	20.9	11.2
Bumping Lake (Old)	21C8	3450	12/15	21	4.2	4.1	4.2*
			1/2	29	8.9	--	6.6
			1/15	42	12.0	14.7	10.6*
			1/31	71	22.2	17.4	12.3
Bumping Lake New	21C36	3400	12/15	25	4.9	4.5	--
			1/2	35	9.6	--	--
			1/15	49	13.4	16.6	--
			1/31	77	24.2	21.3	--
#Cayuse Pass	21C6	5300	12/28	85	23.6	43.0	--
			1/30	149	49.8	64.4	56.3*
Colockum Pass	20B9	5370	1/30	56	12.7	14.8	--
Cooke Creek	20B10	4123	1/30	31	9.6	8.1	--
Grouse Camp	20B11	5385	Not Measured			16.4	12.2*
High Creek	20B12	2930	1/30	33	7.7	8.4	4.6*
[illegible]e Lake +	21B46a	4624	1/29	153	45.9	41.2	--
Lake Cle Elum	21B14M	2200	12/15	8	2.0	3.2	1.7*
			12/31	12	3.6	6.3	3.9*
			1/14	19	4.5	12.3	5.9*
			1/29	44	11.7	15.4	7.8
Lemah Creek +	21B47a	3327	1/29	108	32.4	31.5	--
Manashtash	20C1	3935	1/28	41	8.4	6.0	3.4*
Morse Lake	21C17	5400	1/30	130	39.6	51.4	39.7*
Nanum	20B13	3875	1/30	42	9.1	10.6	6.9*
#Olallie Meadows	21B2	3625	1/29	92	30.3	48.2	30.2*
#Satus Pass	20D1	4030	1/29	39	12.1	14.9	--
#Stampede Pass	21B10	3000	12/1	9	2.0	11.7	7.4*
			12/15	21	6.5	31.8	10.8*
			1/1	55	16.9	32.0	16.9*
			1/15	47	15.0	45.4	21.4*
			2/1	98	27.9	50.0	28.8
Trail Creek	20B14	3360	1/30	19	5.3	4.5	--
Tunnel Avenue	21B8	2450	12/15	9	1.8	6.3	5.5*
			12/30	21	4.8	--	8.6
			1/14	31	7.1	23.8	13.1*
			1/29	67	17.5	25.6	17.0
Walters Flat	20B15	3360	1/30	38	8.0	8.9	5.9*

\# Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
Waptus Lake +	21B49a	3024	1/29	102	30.6	New Marker	
White Pass (E. Side)	21C28	4500	12/18	18	5.0	8.2	--
			1/2	31	6.7	--	11.1*
			1/20	48	14.1	20.1	13.7*
			1/30	62	19.3	23.4	16.7*
White Pass (L. Lake)	21C27	4500	12/18	19	6.7	9.5	--
			12/30	36	9.8	20.8	13.3*
			1/20	52	15.1	27.0	--
			1/30	73	23.8	29.0	20.6*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	12/26	22	4.6	4.0	3.2*
			1/27	43	8.2	10.2	5.7
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	1/29	68	20.0	23.6	--
MILL CREEK							
Homestead	17C1	4030	Not Measured			16.4	5.5*
Martin Springs	17C2	4400	Not Measured			19.1	8.4*
Walla Walla Diversion	18D13	2400	2/2	0	0.0	8.6	1.5
KLICKITAT RIVER							
Satus Pass	20D1	4030	1/29	39	12.1	14.9	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	12/31	51	16.6	28.4	15.4*
			1/29	84	28.4	45.3	29.4*
#Surprise Lakes	21C13A	4250	12/31	50	16.0	--	18.5*
			1/29	85	30.3	50.2	32.7*
WIND RIVER							
Old Man Pass	21D19	3100	12/28	19	4.3	--	4.1*
			1/29	30	8.1	24.8	12.5*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation
++ 1953-67 period

WSFB-X4

APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LEWIS RIVER							
Blue Lake +	21C22a	4800	12/28	96	25.0	44.1	30.1*
			1/29	152	53.2	67.5	56.0*
Bob's Trail	21C21	2200	12/28	9	2.0	--	6.3*
			1/30	19	4.6	18.0	9.7*
Calamity Ridge +	22D1a	2500	12/30	8	1.8	--	--
			1/29	10	3.3	24.1	--
Council Pass +	21C18a	4200	12/28	45	13.0	22.0	18.4*
			1/29	80	25.6	39.0	27.4*
#Cultus Creek	21C12	4000	12/31	51	16.6	28.4	15.4*
			1/29	84	28.4	45.3	29.4*
Divide Meadow +	21C29a	5600	12/28	46	14.7	28.5	24.7*
			1/29	104	37.4	--	39.5*
Grand Meadow	21C25	3500	12/31	30	7.9	16.4	9.7*
			1/29	52	15.0	28.6	16.9*
Lone Pine Shelter	21C26	3800	12/31	41	10.8	19.1	--
			2/1	74	22.3	38.4	28.8*
Marble Mountain +	22C5a	3200	12/28	35	9.8	16.2	--
			1/28	32	12.8	41.5	--
#Mosquito Meadows	21C19	4100	12/31	47	12.9	18.0	--
			2/1	79	23.1	37.5	31.8*
New Muddy River	22C6	1400	12/27	3	0.7	--	--
			1/30	10	2.2	20.0	--
Old Man Pass	21D19	3100	12/28	19	4.3	--	4.1
			1/29	30	8.1	24.8	12.5*
Plains of Abraham +	22C1a	4400	12/28	90	24.3	37.5	22.1*
			1/29	183	@	60.8	39.0*
Smith Creek Road	22C4	2100	12/27	23	7.9	--	6.5*
			1/30	38	14.2	27.5	11.9*
Spencer Meadow +	21C20a	3400	12/28	24	6.2	13.5	7.8*
			1/29	38	11.0	35.4	14.3*
Surprise Lakes	21C13A	4250	12/31	50	16.0	--	18.5*
			1/29	85	30.3	50.2	32.7*
Table Mountain +	21C24a	4200	12/28	54	15.7	24.6	21.1*
			1/29	95	30.4	43.6	32.1*
Timbered Peak +	21D18a	3000	12/31	12	2.8	--	--
			1/29	12	4.0	--	12.5
COWLITZ RIVER							
Cayuse Pass	21C6	5300	12/28	85	23.6	43.0	--
			1/30	149	49.8	64.4	56.3*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation
@ Aerial marker depth affected by avalanches
++ 1953-67 period

APPENDIX 10

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
COWLITZ RIVER (Cont.)							
Mosquito Meadows	21C19	4100	12/31	47	12.9	18.0	--
			2/1	79	23.1	37.5	31.8*
Ohanapecosh	21C32	2200	12/30	9	2.4	9.6	--
			1/30	31	8.0	17.3	13.7*
Packwood Lake	21C31	2870	12/28	7	1.2	9.4	--
			2/3	22	5.4	19.2	8.6*
Pigtail Peak	21C33	5900	12/15	40	10.4	--	--
			12/30	58	16.1	41.8	--
			1/20	94	27.8	51.4	--
			1/30	113	35.3	54.4	--
Plains of Abraham +	22C1a	4400	12/28	90	24.3	37.5	22.1*
			1/29	183	@	60.8	39.0*
Potato Hill	21C14	4500	12/31	37	10.9	22.9	--
			2/2	80	24.5	36.6	20.8*
#White Pass (E. Side)	21C28	4500	12/18	18	5.0	8.2	--
			1/2	31	6.7	--	11.1*
			1/20	48	14.1	20.1	13.7*
			1/30	62	19.3	23.4	16.7*
#White Pass (L. Lake)	21C27	4500	12/18	19	6.7	9.5	--
			12/30	36	9.8	20.8	13.3*
			1/20	52	15.1	27.0	--
			1/30	73	23.8	29.0	20.6*
Willame Creek	21C30	3250	12/31	21	5.7	14.8	--
			1/30	50	12.7	27.4	21.4*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	12/29	50	12.6	20.9	--
			1/30	82	27.0	36.4	30.7*
Longmire	21C3	2760	12/29	12	2.2	5.1	--
			1/29	14	4.7	12.0	7.3*
New Paradise Park	21C35	5500	12/29	72	17.2	31.5	--
			1/29	138	48.0	43.8	--
Stem Glade	21C1	5050	12/29	79	21.1	36.9	--
			1/29	136	42.8	52.4	47.1*
WHITE RIVER							
#Cayuse Pass	21C6	5300	12/28	85	23.6	43.0	--
			1/30	149	59.8	56.3*	

\# Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

@ Aerial marker depth affected by avalanches

++ 1953-67 period

APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
GREEN RIVER							
Airstrip	21B24	1800	11/26	0	0.0	0.9	--
			12/28	5	0.5	--	--
			1/30	15	4.2	13.2	--
Charley Creek	21B25	1200	11/26	0	0.0	0.9	--
			12/27	0	0.0	4.1	--
			1/30	0	0.0	8.6	--
Lynn Lake	21B50	4000	11/26	0	0.0	New Course	
			12/28	25	6.5		
			1/30	24	7.5		
Grass Mtn #2	21B27	2900	11/26	0	0.0	3.1	2.7*
			12/27	23	5.4	--	6.0*
			1/30	36	13.1	22.8	13.6*
Grass Mtn #3	21B28	2100	11/26	0	0.0	1.0	--
			12/27	8	1.3	--	--
			1/30	14	4.3	16.7	--
Lester Creek	21B29	3100	11/26	0	0.0	4.4	3.5*
			12/28	28	5.8	--	9.8*
			1/30	48	12.6	27.3	16.3*
Sawmill Ridge	21B31	4700	11/26	7	0.8	9.0	8.0*
			12/28	43	9.0	25.0	12.0*
			1/30	62	19.6	35.4	27.8*
Snowshoe Butte	21B43SP	5000	12/17	25	5.4	--	--
			1/29	96	29.0	65.8	--
Stampede Pass	21B10	3000	12/1	9	2.0	11.7	7.4*
			12/15	21	6.5	31.8	10.8*
			1/1	55	16.9	32.0	16.9*
			1/15	47	15.0	45.4	21.4*
			2/1	98	27.9	50.0	28.8
Twin Camp	21B30	4100	11/26	3	1.0	6.1	--
			12/28	34	8.4	15.8	--
			1/30	55	16.0	22.8	--
SNOQUALMIE RIVER							
Olallie Meadows	21B2	3625	1/29	92	30.3	48.2	30.2

* Adjusted 1953-67 average

++ 1953-67 period

WSFB-X4

APPENDIX 12

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	10/29	0	0.0	--	--
			11/14	0	0.0	7.0	--
			11/26	14	3.1	12.1	10.0*
			12/15	40	8.6	21.9	14.7*
			12/30	64	16.4	29.7	20.8
			1/14	78	21.7	47.5	26.6
			1/29	127	35.3	51.5	34.4
#Stevens Pass Sand Shed	21B45	4070	10/29	0	0.0	--	--
			11/14	0	0.0	3.0	--
			12/1	Not Measured		6.8	--
			12/15	29	5.2	14.5	--
			12/30	43	11.4	19.4	--
			1/14	58	15.4	33.6	--
			1/29	97	25.0	37.0	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	1/29	35	8.6	--	--
Beaver Pass	21A1	3680	1/29	69	21.7	32.2	--
Brown Top Ridge +		6000	1/29	114	29.6	New Marker	
#Cloudy Pass +	20A22a	6500	Not Measured			34.2	27.4*
Devils Park	20A4	5900	1/30	82	24.3	33.7	30.2*
Freezeout Creek Trail	20A1	3500	1/29	36	9.4	12.9	--
Freezeout Meadow	20A2	5000	1/29	69	17.1	22.9	--
#Harts Pass	20A5A	6500	1/30	90	26.0	36.7	28.2*
Klesilkwa	Canada	3700	2/1	38	9.1	--	9.5**
Lake Hozomeen	21A2	2600	1/29	30	6.6	--	--
#Lyman Lake	20A23A	5900	Not Measured			53.4	38.9*
Meadow Cabins	20A8	1900	1/30	17	4.6	10.5	--
#Rainy Pass	20A9	4780	1/30	81	22.4	36.6	27.5*
Thunder Basin	20A7	4200	1/30	54	14.1	--	--
BAKER RIVER							
Baker Pass +	21A27a	4900	12/2	12	--	New Marker	
			12/15	54	--		
			1/2	78	--		
			1/15	100	32.0		
			1/30	124	47.1		
Dock Butte +	21A11A	3800	12/2	12	--	--	--
			12/15	32	--	16.8	--
			1/2	70	--	22.4	--
			1/15	65	20.8	42.9	--
			1/30	84	31.9	63.5	46.8*

Not located directly on this drainage

++ 1953-67 period

** Average for years of record

* Adjusted 1953-67 average

+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 13

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
BAKER RIVER (Cont.)							
Easy Pass +	21A7A	5200	12/2	8	--	--	--
			12/15	26	--	--	--
			1/2	53	--	26.8	--
			1/15	Not Measured		45.8	--
			1/30	114	43.3	57.6	59.0*
Jasper Pass +	21A6A	5400	12/15	62	--	--	--
			1/2	90	--	41.0	--
			1/15	122	39.0	62.4	--
			1/30	154	58.5	79.7	68.5*
Marten Lake +	21A9A	3600	12/15	50		17.3	--
			1/2	66		28.1	--
			1/15	93	29.8	53.1	--
			1/30	118	44.8	62.8	56.4*
Mt. Blum +	21A18a	5800	12/2	4	--	--	--
			12/15	24	--	--	--
			1/2	30	--	22.4	--
			1/15	48	15.4	36.5	--
			1/30	90	34.2	47.6	--
#Panorama New	21A26	4300	1/12	89	28.6	40.0	--
			1/26	105	39.7	49.0	--
Panorama SP	21A25SP	4300	Not Measured				
Rocky Creek	21A12A	2100	12/2	0	--	--	--
			12/15	2	--	2.9	--
			1/2	6		12.5	--
			1/15	27	8.6	25.5	--
			1/30	32	12.2	40.7	19.6*
Schreibers Meadow	21A10A	3400	12/2	12	--	--	--
			12/15	34	--	12.0	--
			1/2	51	--	21.3	--
			1/15	65	20.8	43.5	--
			1/30	86	32.7	56.9	42.5*
S. F. Thunder Creek	21A14A	2200	12/15	0	--	--	--
			1/2	3	--	5.2	--
			1/15	6	1.9	13.9	--
			1/30	8	3.0	19.3	4.6*
Watson Lakes	21A8A	4500	12/15	30	--	--	--
			1/2	40	--	23.9	--
			1/15	68	21.8	40.0	--
			1/30	80	30.4	54.5	--

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

WSFB-X4

APPENDIX 14

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
NOOKSACK RIVER							
Panorama New	21A26	4300	1/12	89	28.6	40.0	--
			1/26	105	39.7	49.0	--
Panorama SP	21A25SP	4300	Not Measured				
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	1/28	55	13.3	20.1	16.3*
MORSE CREEK							
Deer Park G. S.	23B13	4850	1/29	34	7.2	14.5	--
Cox Valley	23B14	4500	1/31	81	23.1	32.3	--
ELWHA RIVER							
Hurricane	23B3	4500	1/29	51	10.5	21.5	17.5*
SKOKOMISH RIVER							
Black & White	23B7	4200	12/30	40	11.9	19.5	--
			1/28	63	19.1	43.2	29.0*
Black & White Lakes	23B6	4700	12/30	70	25.1	30.6	--
			1/28	100	38.2	49.0	41.5*
Four Streams	23B10	3000	12/30	35	9.4	14.7	--
			1/28	46	13.9	35.4	--
Home Sweet Home	23B5	5200	12/30	84	28.2	43.2	--
			1/28	126	39.8	67.5	54.8*
Sundown Pass	23B8	3900	Not Measured			31.0	--
			1/28	97	35.0	55.8	36.5*

* Adjusted 1953-67 average

++ 1953-67 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Water Resources
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.

and

DEPARTMENT of WATER RESOURCES STATE of WASHINGTON

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAR. 1, 1970

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P O Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U. S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C

Released by

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In Cooperation with

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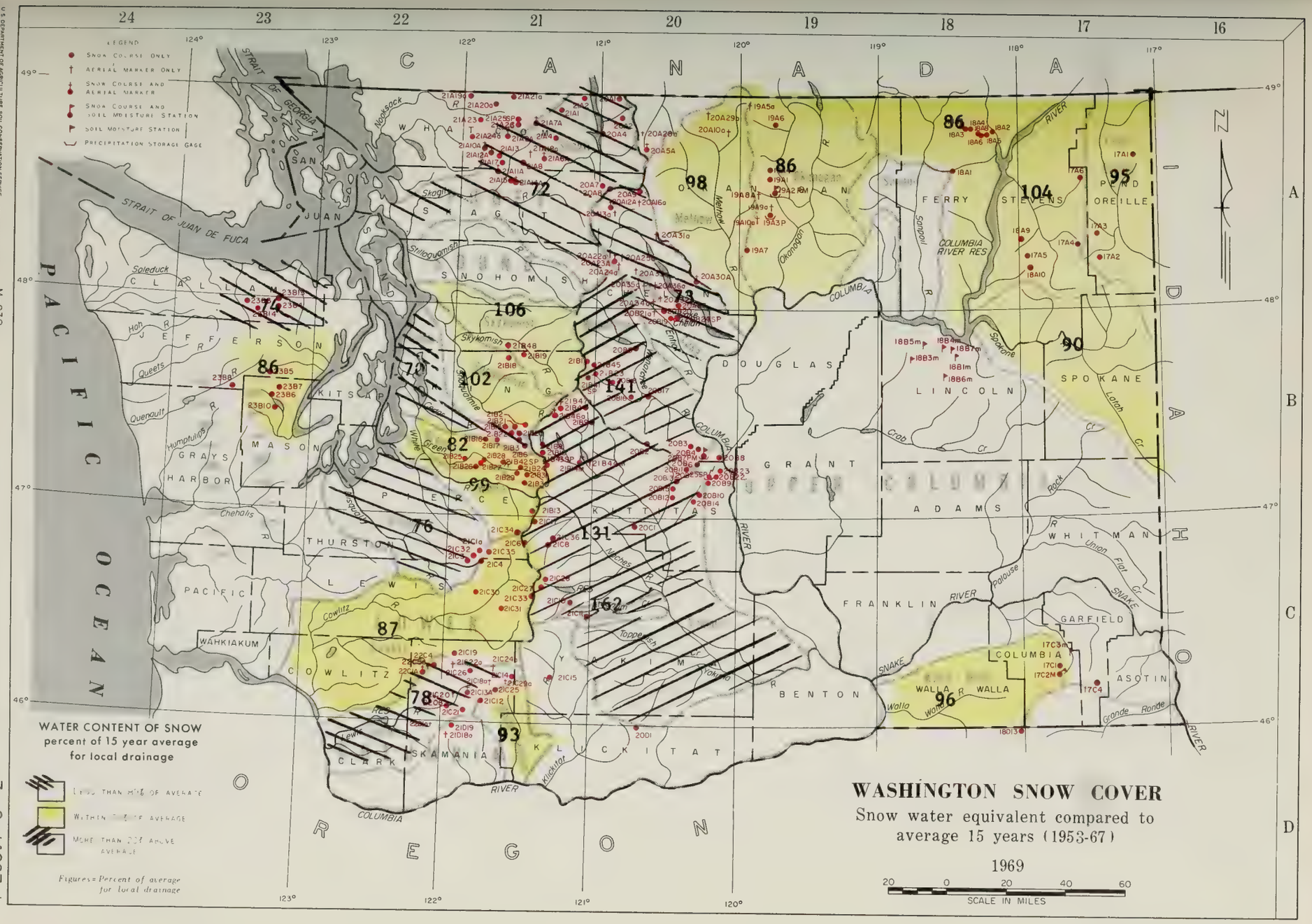

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	2	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2800

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	2[illegible]	39N	35E	4070
Cabin Creek	18A[illegible]	5	3[illegible]N	36E	3100
Goat Creek	18A4	2[illegible]	39N	35E	3995
Snow Caps Creek	18A6	3	3[illegible]N	36E	2150
Snow Caps Trail	18A[illegible]	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4000

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4325
Stranger Mountain	17A5	26	31N	38E	4000
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	13	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	17	31N	15E	6600
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	[illegible]	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	21N	20E	6200
War Creek Pass	20A31a	24	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A30a	17	30N	18E	6510
Pope Ridge	20B2[illegible]	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A3[illegible]	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Clockum Creek	20B22	11	20N	20E	5300
Clockum Creek No. 2	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	26	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2370
Sherman	18B7m	24	25N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	13N	14E	3100
Big Boulder Creek	21B4	35	23N	14E	4200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C3a	13	16N	12E	3400
Clockum Pass	20B9	25	20N	20E	5300
Cooke Creek	20B10	17	19N	20E	4100
Domery Flat	21B44m	15	20N	14E	2[illegible]
Fish Lake	21B4	34	24N	14E	4300
Green Lake	21C10	3	12N	14E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B4 a	22	23N	12E	4[illegible]24
Lake Ole Elum	21B44M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manachtash	20C1	24	17N	16E	5935
Morse Lake	21C17	6	16N	11E	54[illegible]
Nanum	20B13	4	20N	13E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	42E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	30	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5300
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3600
Devils Park	20A4	34	38N	14E	5700
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	5	40N	14E	5000
Lake Hozomeen	21A2	19	40N	14E	2[illegible]00
Meadows Cabins	20A6	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	39N	8E	[illegible]
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5200
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	38N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1[illegible]00
Three Mile Creek	21A15	18	38N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	[illegible]	40N	7E	44[illegible]
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-17	38N	8E	[illegible]
Mazama Park	21A24a	2	37N	7E	4500
Panorama New	21A26	17	39N	9E	[illegible]
Panorama Snow Pillow	21A26SP	17	39N	9E	43[illegible]
Twin Lakes	21A21a	16	40N	9E	52[illegible]

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	24	29N	5W	
Deer Park G. S.	23B13	1	28N	5W	4850

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

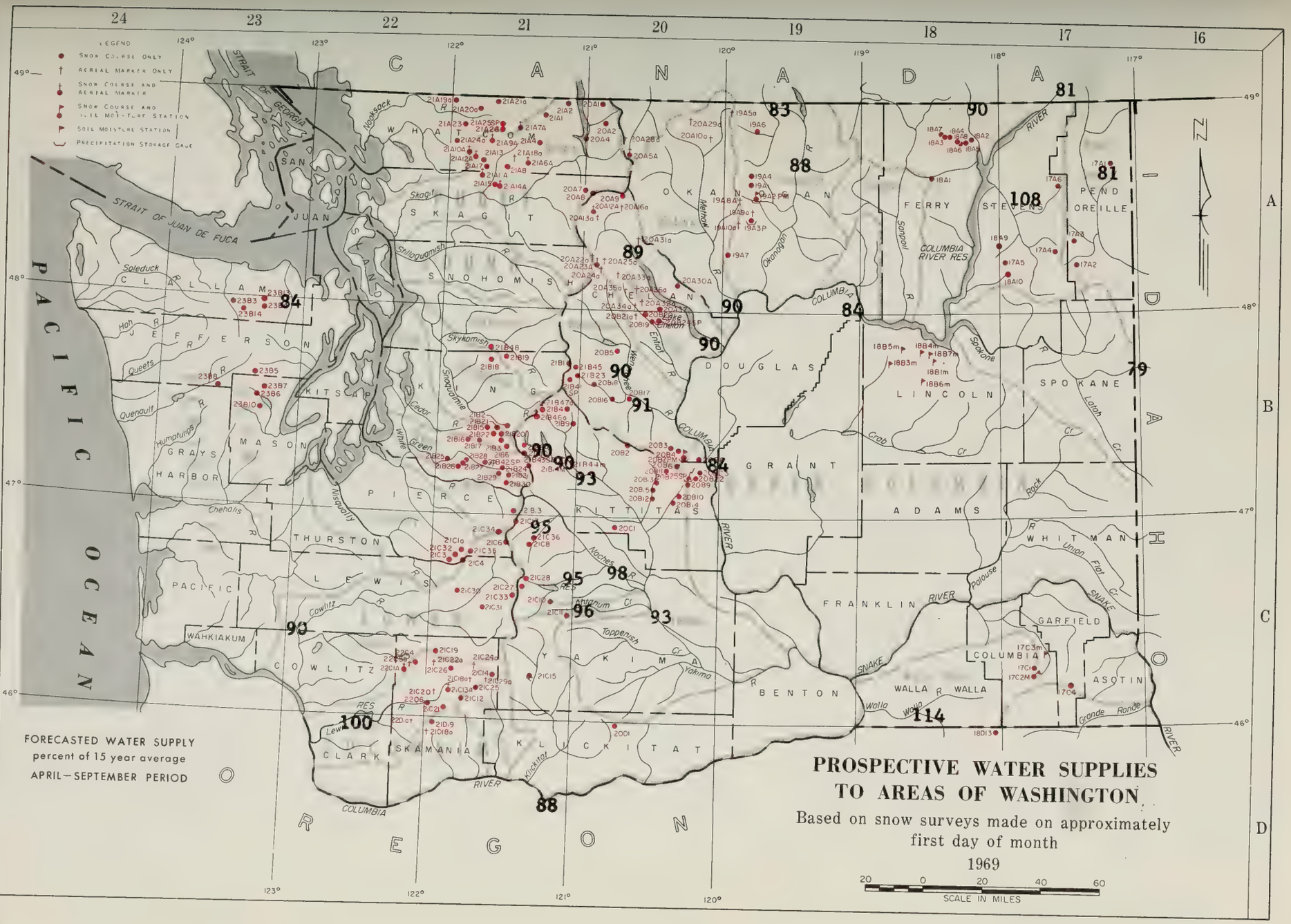
Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW



U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2000
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4000
Cabin Creek	18A8	5	38N	36E	3100
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4900
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	30N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5205
Lyman Lake	20A23a	18	31N	16E	5000
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3030
Rainy Pass	20A9	21	35N	17E	4880
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3250
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4200
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3900
Trough #2	20B25SP	10	20N	20E	5310
Clockum Creek					
Clockum Creek	20B12	11	20N	20E	6300
Clockum Creek No. 2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B5PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	25N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	22	16N	12E	3450
Bumping Lake New	21C36	19	16N	12E	3470
Clockum Pass	20B9	26	20N	20E	5300
Cooke Creek	20B10	17	19N	20E	4130
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3374
Green Lake	21C10	3	17N	13E	6000
Grouse Camp	20B11	29	24N	19E	5386
High Creek	21B12	24	20N	14E	2320
Joe Lake	21B4 a	22	23N	12E	4624
Lake Cle Elum	21B14M	25	23N	14E	[illegible]
Lemah Creek	21B47a	7	23N	13E	3320
Manashtash	20C1	24	17N	18E	3435
Morse Lake	21C17	5	16N	11E	[illegible]
Nanum	20B13	[illegible]	20N	19E	[illegible]
Trail Creek	20B14	20	19N	20E	[illegible]
Tunnel Avenue	21B8	12	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C29	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2060
Paradise Park (New)	21C45	13	15N	8E	
Stem Blade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	39N	9E	6200
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	20	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Mazama Park	21A24a	2	39N	7E	4500
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Deer Park G. S.	23B13	1	28N	5W	4850
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
March 1, 1970

* *
* There has been a general deterioration of the snowpack on the water- *
* sheds in the state of Washington and tributary streams. As a result *
* of this the water supply outlook for irrigation and power can now be *
* considered adequate. Snow surveys made in the state and adjacent *
* areas indicate the snowpack now ranges from a high of 62 percent *
* above normal down to 30 percent below normal. The snowpack on the *
* eastern half of the state is much better than that in the Puget Sound *
* drainage with above-normal cover still reported in the Wenatchee- *
* Yakima areas. Generally speaking, the snow cover at the higher ele- *
* vations along the Cascade crest shows the influence of this poor snow *
* condition on the west side while the areas at lower elevations east *
* of the Cascades have the above-normal snowpacks. Also, the situa- *
* tion is much improved in Washington than in tributary basins in *
* British Columbia. Precipitation was above normal only in two areas *
* in the state--northeast and southwest Washington, with the greater *
* amounts falling in the Blue Mountain area. *
* *
* Reservoirs generally have less amounts of water in storage for this *
* time of year but no shortages are expected with normal subsequent *
* precipitation during the filling period. The soil mantle at the *
* lower elevations is generally in excellent condition as a result of *
* early winter melting of this low-elevation snowpack. During the *
* month of February the runoff varied from a high of 42 percent above *
* normal for the Walla Walla River as measured near Touchet to a low *
* of 54 percent of normal for the Okanogan near Tonasket. *
* *

SNOW COVER

The only basins with above-normal snow cover are the Colville, Entiat, Wenatchee, Yakima, Ahtanum, Snoqualmie, and Skykomish. The two basins on the west side are measured primarily by high-elevation Cascade crest snow courses with the subsequent above-normal snowpack. The situation west of the Cascades is generally much poorer than is experienced on the east side. Low-elevation snowpacks west of the Cascades have little or no snow cover as of the first of March with the only good snowpacks being measured at the higher elevations. East of the Cascades the snow cover is uniform throughout all elevation area zones.

RESERVOIRS

The irrigation reservoirs in the state have only 47 percent of capacity in stored water as of March 1 where the average for this time of year is 64 percent. The main power reservoirs, with the exception of Lake Roosevelt, have less water in storage than average for this time of year. It is anticipated that there will be sufficient runoff in all areas to fill these reservoirs during the runoff period. This is on the assumption of normal antecedent climatic conditions.

PRECIPITATION

As reported by the Weather Bureau precipitation for the winter months of November through February is below normal again with the exception of southeastern Washington. During the month of January all drainage divisions reported well above-normal precipitation again with the exception of the Columbia in Canada. There was marked deterioration in the precipitation period in February with only the eastern part of the state reporting above-normal conditions. In Canada the Columbia drainage division had only 29 percent of normal precipitation during February.

SOIL MOISTURE

Since the reading on the first of February there has been a marked increase in soil moisture conditions throughout the state and tributary areas. Low-elevation snow melt has accounted for most of this increase. While the soil is not wetted to field capacity it is anticipated that most of the remaining snowpack will be available for spring runoff.

STREAMFLOW

Forecasts of streamflow for the April-September period range from a high of 14 percent above normal to a low of 19 percent below. The lower forecasted streamflow amounts occurred primarily on the main stem of the Columbia River. The influence of the high forecasted amounts out of the lower Snake River drainage accounts for the increase, percentagewise, of the Columbia River as measured below Rock Island Dam to The Dalles. A detailed tabulation of stream flow forecasts can be found on the following pages so will not be repeated here. During the month of February streamflow was generally below normal with only a few stations reporting normal or above water flows.

STREAMFLOW FORECASTS - MARCH 1970

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1969 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr Average 1953-67
COLUMBIA BASIN							
Columbia River System							
Columbia River at Birchbank 1/	38500	81	Apr-Sep	49744	47785	54005	47657
	29900	80	Apr-Jul	40549	37092	42969	37489
	20200	75	Apr-Jun	32212	25280	30604	27049
Columbia River at Grand Coulee	58250	84	Apr-Sep	74687	63784	73739	69466
	49000	83	Apr-Jul	65696	51685	63282	58909
	36400	79	Apr-Jun	54604	38183	48697	45899
Columbia River bl Rock Island Dam 1/	64000	84	Apr-Sep	80257	70298	82547	75942
	52500	81	Apr-Jul	71039	57403	71130	64572
	40500	81	Apr-Jun	59289	42326	54559	50195
Columbia River at The Dalles, OR 1/	93200	88	Apr-Sep	108959	89008	109176	105228
	78000	87	Apr-Jul	96628	72494	94408	90094
	62200	86	Apr-Jun	82719	55499	74179	72446
Pend Oreille River System							
Pend Oreille River bl Box Canyon	12950	81	Apr-Sep		12895	16492	15990
	11750	80	Apr-Jul		11020	15587	14770
	9800	77	Apr-Jun		9391	13362	12745
Kettle River System							
Kettle River nr Laurier	1730	90	Apr-Sep		1851	1923	1918
	1640	90	Apr-Jul		1720	1891	1821
	1490	91	Apr-Jun		1560	1750	1644

Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - March 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr. Average 1953-67
Kettle River System (Cont.)							
Colville River at Kettle Falls	165	108	Apr-Sep		63	129	153
	153	109	Apr-Jul		54	123	141
	142	108	Apr-Jun		50	116	131
Spokane River System *							
Spokane River at Post Falls ID 2/	2500	79	Apr-Sep		1681	2811	3151
	2400	79	Apr-Jul		1577	2752	3055
	2300	79	Apr-Jun		1487	2618	2913
Okanogan River System**							
Similkameen River nr. Nighthawk	1270	83	Apr-Sep		1449	1678	1525
	1200	85	Apr-Jul		1359	1607	1419
	1040	87	Apr-Jun		1158	1396	1197
Okanogan River nr. Tonasket	1530	88	Apr-Sep		1567	1822	1738
	1390	88	Apr-Jul		1429	1740	1578
	1300	90	Apr-Jun		1202	1513	1318
Methow River System**							
Methow River nr. Pateros	950	90	Apr-Sep		973	1256	1054
	880	90	Apr-Jul		906	1198	981
	750	90	Apr-Jun		767	1034	834
Chelan River System							
Chelan River at Chelan 3/	1140	90	Apr-Sep		1224	1366	1266
	1030	92	Apr-Jul		1068	1231	1119
	820	94	Apr-Jun		798	966	870
Stehekin River at Stehekin	800	89	Apr-Sep		868	1004	904
	690	89	Apr-Jul		735	868	772
	540	92	Apr-Jun		535	674	586

* Forecasts made by Morlan W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - March 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr. Average 1953-67
Wenatchee River System							
Wenatchee River at Plain	1200	90	Apr-Sep		1163	1324	1333
	1100	91	Apr-Jul		1028	1213	1204
	900	95	Apr-Jun		812	955	952
Wenatchee River at Peshastin	1650	91	Apr-Sep		1526	1797	1814
	1520	92	Apr-Jul		1355	1662	1651
	1250	95	Apr-Jun		1087	1326	1316
Stemilt Basin nr. Wenatchee	130	--	May-Sep			146*	--
Yakima River System							
Yakima River nr. Martin 4/	130	90	Apr-Sep		97	115	145
	120	90	Apr-Jul		79	113	134
	107	92	Apr-Jun		73	102	116
Yakima River at Cle Elum 5/	900	93	Apr-Sep		695	868	968
	830	94	Apr-Jul		589	801	885
	740	97	Apr-Jun		510	695	762
Yakima River nr. Parker 6/	1650	93	Apr-Sep			1543	1772
	1640	94	Apr-Jul			1584	1752
	1550	96	Apr-Jun			1480	1608
Kachess River nr. Easton 7/	115	90	Apr-Sep		76	100	128
	110	90	Apr-Jul		66	98	122
	100	93	Apr-Jun		62	90	107
Cle Elum River nr. Roslyn 8/	440	90	Apr-Sep		358	431	485
	410	92	Apr-Jul		311	405	445
	350	94	Apr-Jun		264	347	373
Bumping River nr. Nile 9/	142	95	Apr-Sep		105	145	150
	131	95	Apr-Jul		93	136	138
	112	98	Apr-Jun		73	114	114

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - March 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr Avg	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr. Average 1953-67
Yakima River System (Cont.)							
American River							
nr. Nile	124	96	Apr-Sep		98	128	129
	115	96	Apr-Jul		88	119	120
	99	100	Apr-Jun		78	100	99
Tieton River							
at Tieton Dam 10/	240	95	Apr-Sep		166	241	251
	207	96	Apr-Jul		134	210	215
	168	98	Apr-Jun		111	169	172
Naches River							
nr. Naches 11/	880	98	Apr-Sep		592	876	899
	810	99	Apr-Jul		511	810	819
	700	100	Apr-Jun		437	694	698
Ahtanum Creeks							
nr. Tampico 12/	47	96	Apr-Sep		31	56	49
	43	96	Apr-Jul		27	52	45
	39	98	Apr-Jun		24	45	40
Lower Columbia River System							
Mill Creek							
nr. Walla Walla	33	114	Apr-Sep		15	23	29
	29	116	Apr-Jul		11	20	25
	27	117	Apr-Jun		10	18	23
Lewis River							
at Ariel 13/	1360	100	Apr-Sep		1137	1107	1358
	1200	100	Apr-Jul		862	994	1197
	1070	101	Apr-Jun		782	889	1059
Cowlitz River							
at Castle Rock 14/	2530	90	Apr-Sep		2381	2521	2813
	2230	90	Apr-Jul		1850	2258	2481
	1910	90	Apr-Jun		1630	1934	2119
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River							
nr. Sequim	145	84	Apr-Sep		134	204	172
	121	86	Apr-Jul		107	169	141
	92	88	Apr-Jun		78	124	105

10/ Observed flow corrected for storage in Rimrock Lake
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1970, as per cent of the same date in 1969 and 1968 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1970 Snow Water Expressed as per cent of 1969	1968	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	4 - 12	6 - 33	71	111	95*
Kettle	12 - 14	7 - 32	58	88	86*
Colville	4 - 5	12	64	127	104*
Spokane	12 - 13	6 - 33	73	122	90*
Okanogan	29 - 30	5 - 35	72	98	86*
Methow	6	9 - 27	64	98	98*
Chelan	1	20	67	72	73*
Entiat	1 - 8	5 - 10	78	97	159*
Wenatchee	8 - 10	9 - 25	77	191	141*
Yakima	21 - 24	9 -50	89	204	131*
Ahtanum	2	23 - 25	90	156	162*
		LOWER COLUMBIA			
Mill Creek	1 - 3	15 - 16	61	460	96*
Klickitat	1	13	89	--	--
White Salmon	1 - 2	24	65	157	93*
Lewis	13 - 15	7 - 25	50	124	78*
Cowlitz	8 - 9	6 - 26	63	198	87*
		PUGET SOUND			
Nisqually	3 - 4	5 - 13	71	201	76*
White	3	5 - 25	75	123	99
Green	5 - 6	8 - 24	60	315	82*
Cedar	4 - 5	11 - 19	36	412	70*
Snoqualmie	2 - 3	8 - 25	61	240	102*
Skykomish	2 - 3	11 - 25	70	207	106*
Skagit	12	13 - 23	59	104	72*
Nooksack	4 - 5	4	62	132	--
		OLYMPIC PENINSULA			
Skokomish	4 - 5	6 - 11	56	88	86*
Elwha	1	16	47	87	66*
Dungeness	1	21	65	102	82*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (March) 1970	1969	1968	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	148.1	85.0	339.7	149.4
Columbia	Franklin D. Roosevelt Lake	5232.0	3464.7	141.2	2353.4	2985.2
Columbia	Banks Lake	761.8	605.4	720.3	717.6	511.7
Okanogan	Conconully Reservoir	13.0	7.4	4.7	7.0	6.1
Okanogan	Salmon Lake	10.5	7.6	6.3	9.0	8.5
Chelan	Lake Chelan	676.1	96.7	166.2	437.0	243.7
		YAKIMA				
Yakima	Keechelus Lake	157.8	59.6	96.5	152.7	99.0
Kachess	Kachess Lake	239.0	169.6	183.8	234.2	178.5
Cle Elum	Lake Cle Elum	436.9	171.8	262.9	398.0	266.0
Bumping	Bumping Lake	33.7	7.2	2.8	28.0	11.0
Tieton	Rimrock Lake	198.0	89.0	149.2	176.4	124.1
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	725.1	616.9	1227.6	851.6
Skagit	Diablo Reservoir	90.6	85.3	87.8	84.2	85.9
Skagit	Gorge Reservoir	9.8	8.3	8.1	8.2	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - MARCH

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Mar. 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	9.4	7.9	9.9
Krause	18B4m	2440	48	13.6	9.0	8.1	6.6
Sheffels	18B5m	2360	48	13.6	8.4	5.8	9.9
Sherman	18B7m	2440	48	13.6	8.9	6.1	8.1
Wheatridge	18B6m	2200	48	13.6	9.8	7.0	8.2
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.4	3.0	2.9
Trout Creek	3-M	3600	48	7.3	3.3*	3.3	4.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	6.0	--	5.0
Lake Cle Elum	21B14M	2200	48	12.8	9.2	--	9.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.5	10.4	7.4
Helmers	17C2M	4400	48	12.0	10.9	10.6	11.4
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	7.1	8.9	13.0

* Feb 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1969	1968	1967
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.5	7.1	5.2
Krause	18B4m	2440	48	13.6	5.9	5.2	4.9
Sheffels	18B5m	2360	48	13.6	4.5	4.9	3.7
Sherman	18B7m	2440	48	13.6	4.2	3.9	3.6
Wheatridge	18B6m	2200	48	13.6	5.4	4.6	4.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.7	2.7	1.5
Trout Creek	3-M	3600	48	7.3	3.8*	4.1	4.0
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	Not Available	3.1	4.8
Lake Cle Elum	21B14M	2200	48	12.8	Not Available	5.2	9.1
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.1	7.4	5.4
Helmers	17C2M	4400	48	12.0	7.1	7.6	6.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.8	5.5	5.6

* Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

ainage visions	FALL Sep - Oct Average	FALL 1969 2/ Departure	WINTER Nov - 1969 Average	WINTER - Feb -1970 2/ Departure
lumbia in Canada	4.73	+0.84	7.97	-3.22
nd Oreille - Spokane	3.81	-0.07	13.83	-1.65
rtheastern Washington	2.91	+0.66	8.80	-0.65
utheastern Washington	2.56	-0.09	11.91	+1.57
ntral Washington	3.83	-0.61	21.15	-2.53
rth Central Washington	2.02	+0.61	5.25	-0.29
rthwest Slope Cascades	12.20	+0.53	34.74	-9.77
uthwest Slope Cascades	9.55	+1.83	32.53	-1.96

rtheastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

utheastern Washington - Touchet, Tucannon and Palouse drainages.

ntral Washington - Yakima, Wenatchee and Chelan drainages.

rth Central Washington - Methow and Okanogan drainages.

rthwest Slope Cascades - Puget Sound drainages.

uthwest Slope Cascades - Lower Columbia drainages.

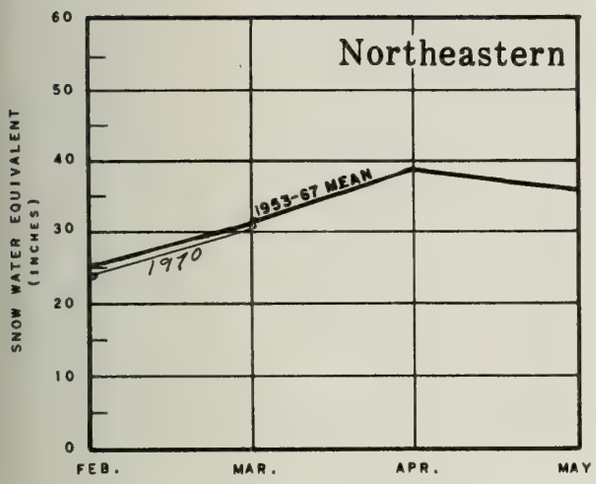
/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau.

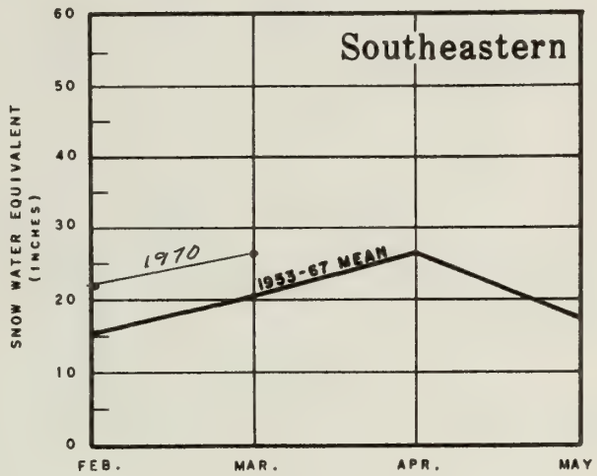
/ - Departure from 15-year(1953-67) drainage division average.

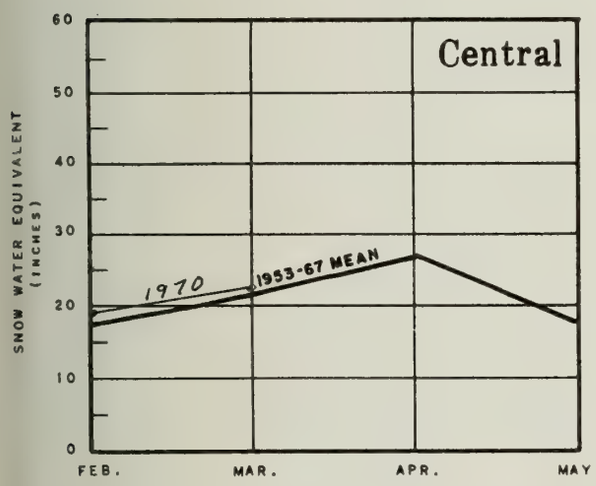
WASHINGTON SNOW COVER

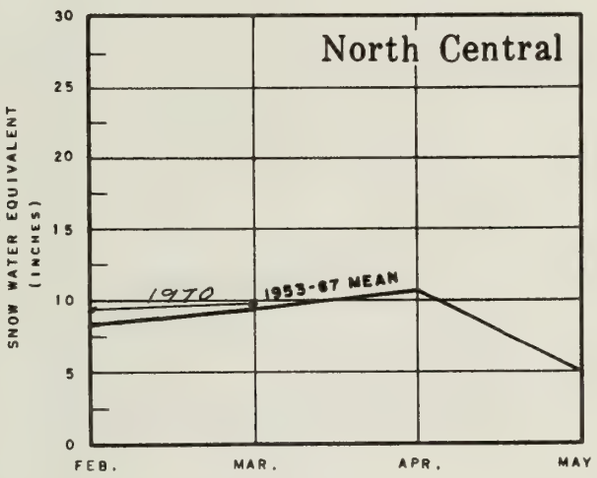
1970

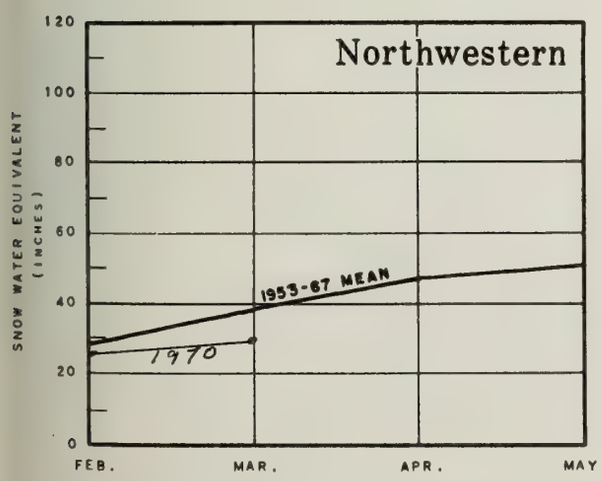
DRAINAGE AREAS

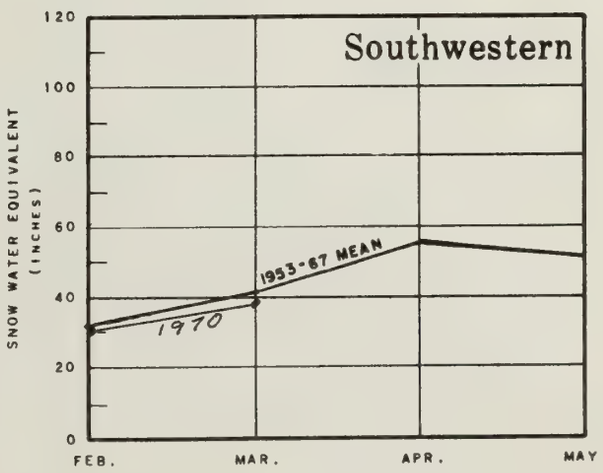










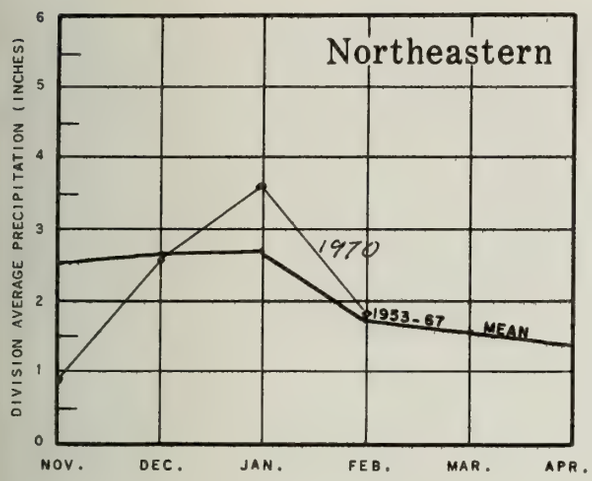


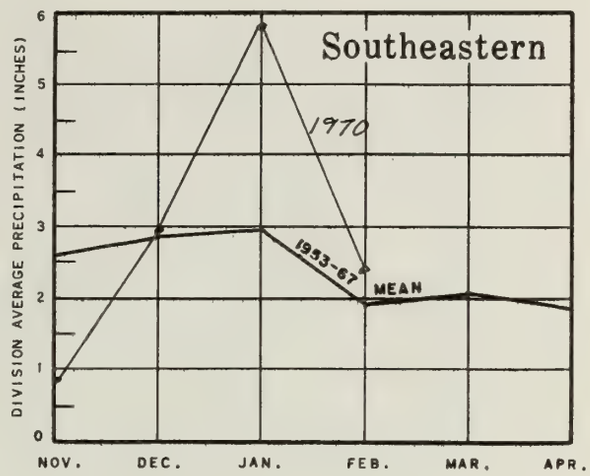
Selected Snow Survey Courses by Soil Conservation Service

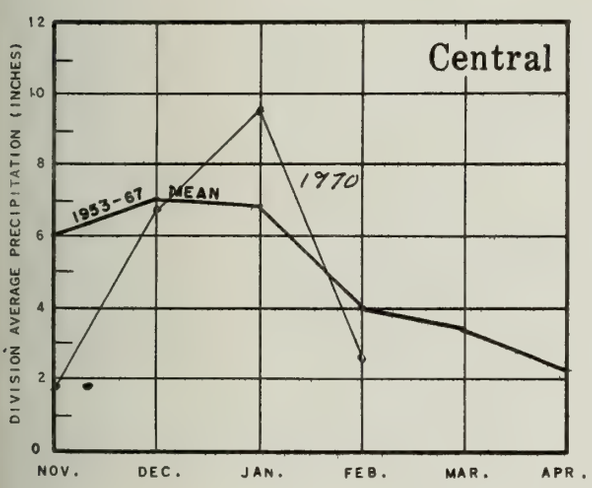
WASHINGTON VALLEY PRECIPITATION

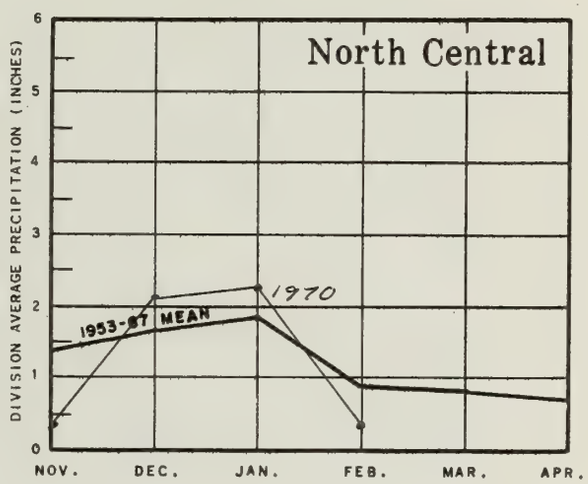
1969-1970

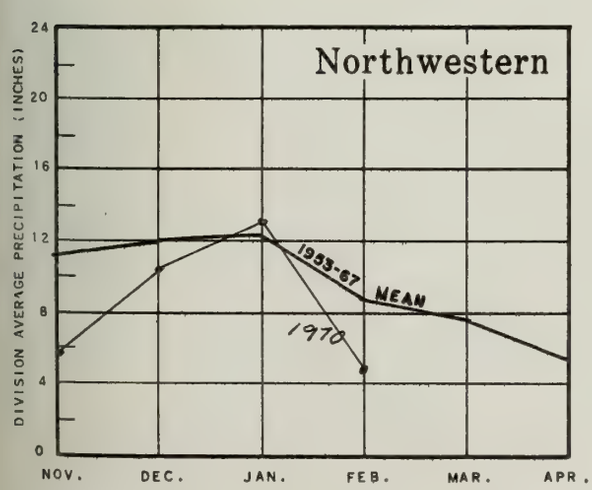
DRAINAGE AREAS

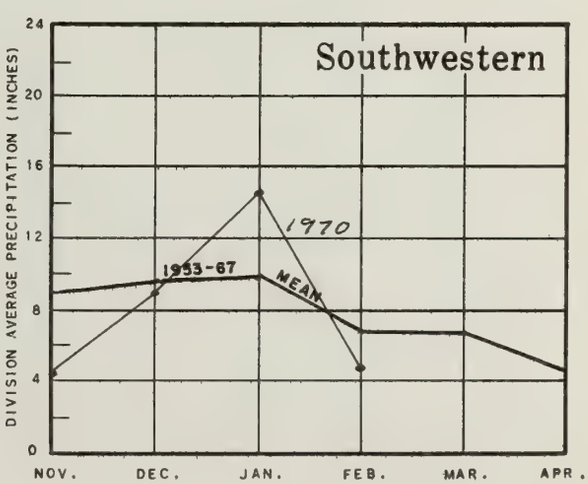










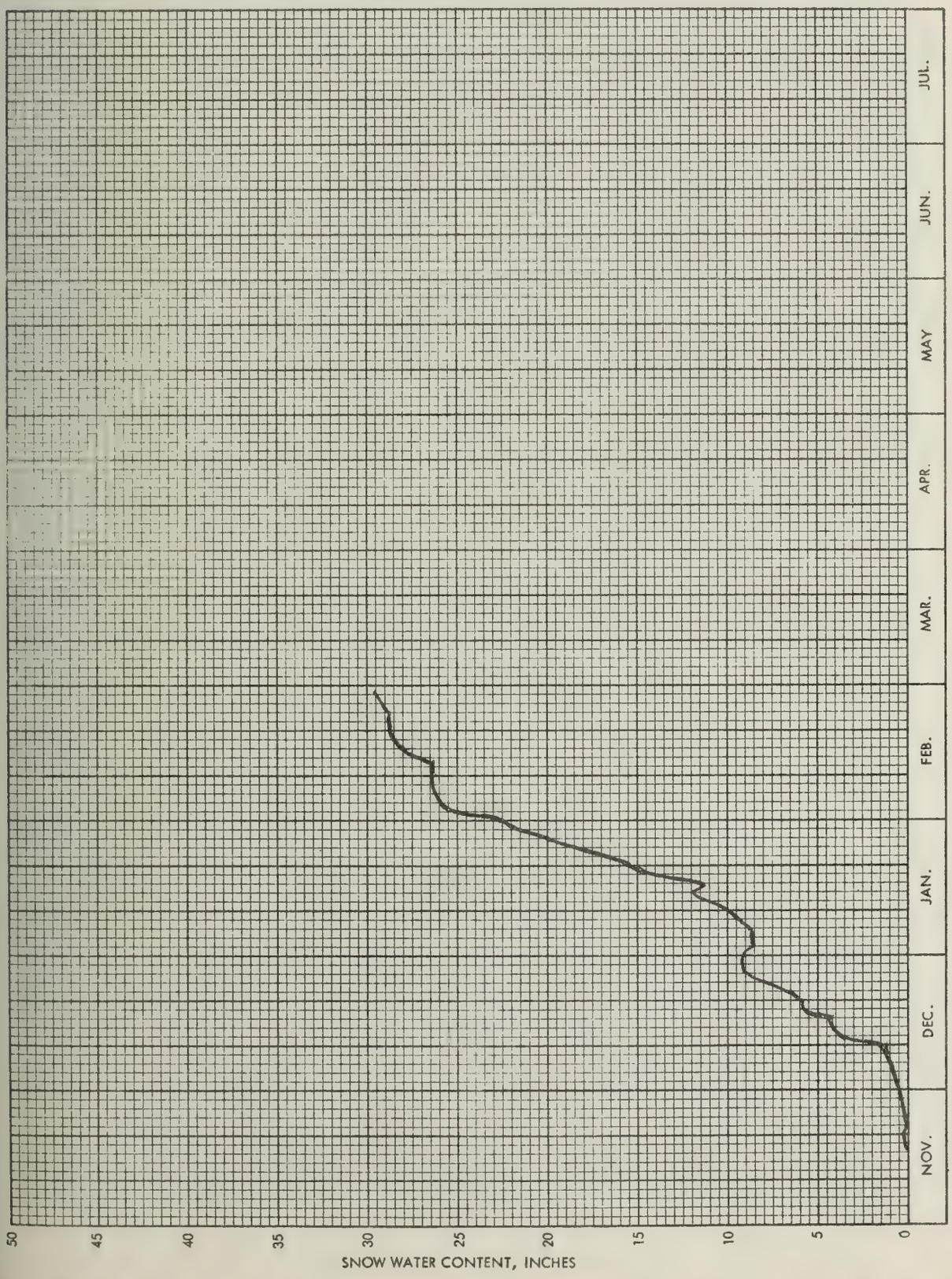


Preliminary Analysis by U. S. Weather Bureau

SNOW PILLOW DATA

Sec. _____ T. _____ R. _____ No. _____ Drainage: _____

Lat. _____ Long. _____ Elev. _____

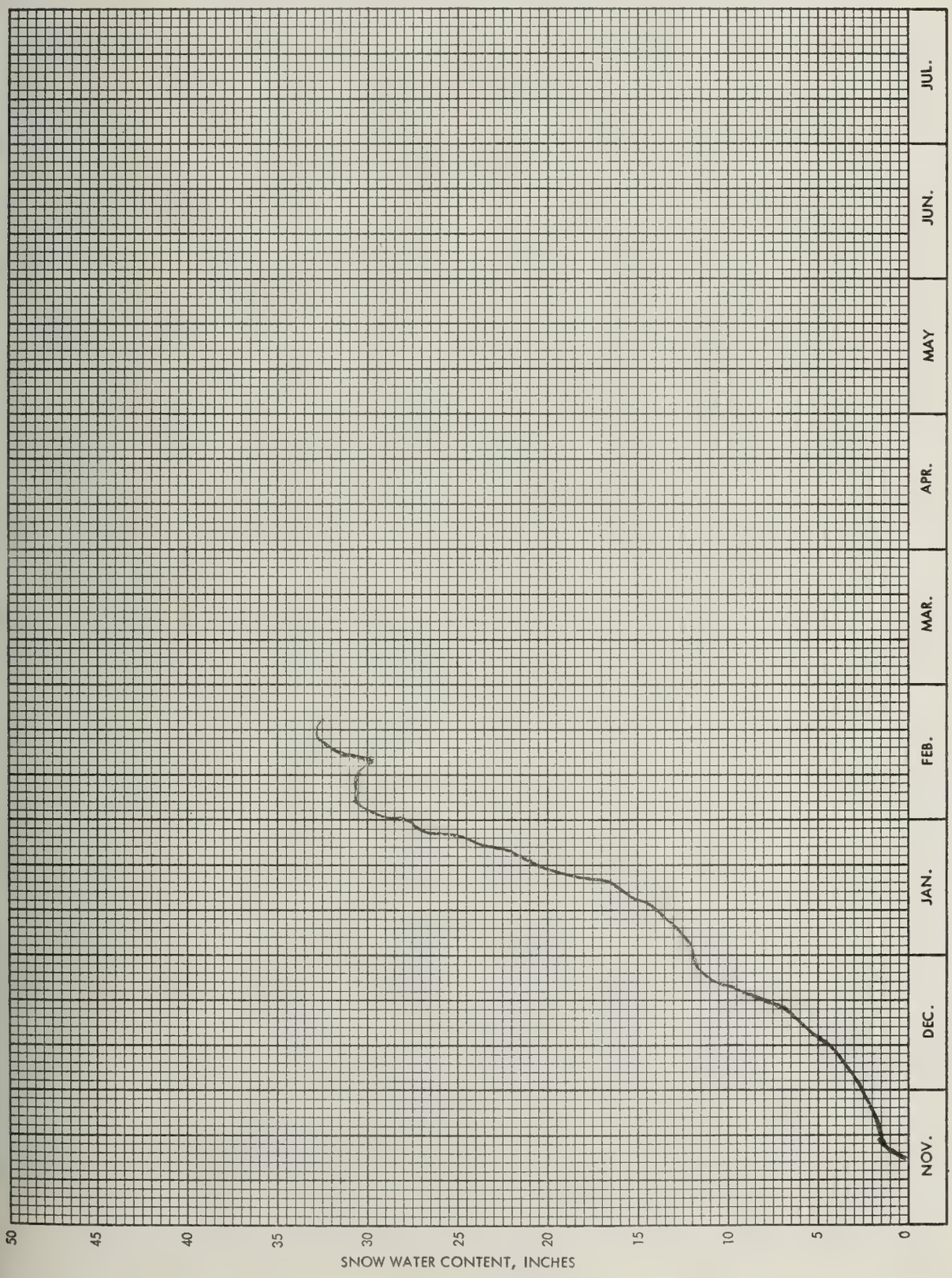


SNOW PILLOW DATA

Snowshoe Butte - FS

Sec. 28 T. 21N R. 9E No. 21B43S2 Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 5000'



SNOW DATA FEBRUARY 1 to MARCH 1, 1970

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	3/1	105	38.0	47.6	--
Baree Midway	15B16	4600	3/1	94	31.0	35.9	--
Baree Trail	15B15	3800	3/1	37	12.0	18.5	--
Benton Meadow	16A2	2344	2/24	25	8.8	12.1	5.8
Benton Spring	16A3	4900	3/2	66	19.0	23.3	18.2
Boyer Mountain	17A2	5250	2/27	68	22.8	32.7	23.4
Brush Creek	14A4	5000	2/25	36	10.0	15.2	11.7
#Chewelah	17A4	4925	2/28	50	14.1	21.3	16.5*
Hoodo Basin	15C10	6000	2/27	109	39.3	51.5	--
Hoodo Creek	15C1	6200	2/27	106	37.7	47.8	42.9*
Hart Lake Trail	14C10	4800	2/27	50	15.8	24.4	20.2*
Lookout	15B2	5250	3/2	104	31.9	41.3	32.3
Mosquito Ridge	16A4A	5100	2/26	110	38.4	39.8	33.8*
Nelson	Canada	3050	2/27	40	12.1	21.3	15.5
Schweitzer Bowl	16A6	4500	2/27	79	25.7	33.8	--
Schweitzer Ridge	16A5	6100	2/27	96	33.5	56.2	--
Smith Creek	16A1	4800	Not Measured			--	--
Winchester Creek	17A3	2970	2/27	42	13.3	18.6	11.5*
KETTLE RIVER							
Barnes Creek	Canada	5500	2/25	40	11.3	16.7	18.4**
Big White Mountain	Canada	5500	2/28	38	12.5	20.8	18.2**
Boulder Road	18A2	1450	2/9	14	4.3	9.4	4.3*
			2/24	12	4.0	9.9	3.5*
Butte Creek	18A3	4070	2/9	26	6.7	13.1	8.1*
			2/24	28	8.3	14.6	8.7*
Cabin Creek	18A8	3170	2/9	24	6.3	12.0	7.5*
			2/24	26	7.7	12.5	7.7*
Carmi	Canada	4100	2/28	19	5.3	8.8	5.9**
Farron	Canada	4000	3/2	38	10.7	20.9	12.5
Goat Creek	18A4	3595	2/9	24	6.6	10.9	6.9*
			2/24	20	6.9	11.8	6.6*
Lower Trapping Cr.	Canada	3050	2/28	13	4.0	7.2	5.1**
#Monashee Pass	Canada	4500	2/25	27	7.3	10.7	13.1**
Old Glory Mountain	Canada	7000	2/28	53	17.1	33.1	24.3
Snow Caps Creek	18A5	2150	2/9	18	5.0	9.2	4.6*
			2/24	14	4.5	10.0	4.2*
Snow Caps Trail	18A6	2720	2/9	20	5.2	9.6	6.1*
			2/24	18	6.4	11.1	6.1*

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

+ 1953-67 period

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME		Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
KETTLE RIVER (Cont.)							
Summit G. S.	18A7	4600	2/9	22	5.7	9.6	8.0*
			2/24	24	6.6	12.0	8.3*
Upper Trapping Cr.	Canada		2/28	24	6.5	9.5	8.7**
COLVILLE RIVER							
Baird	17A6	3215	3/1	27	7.6	10.6	7.0*
Carlson	18A9	2885	3/1	19	5.0	9.9	4.8*
Chewelah	17A4	4925	2/28	50	14.1	21.3	16.5*
Stranger Mountain	17A5	4990	2/28	48	13.7	20.0	12.4*
Togo	18A10	3370	3/1	37	10.4	16.7	9.4*
SPOKANE RIVER							
Above Burke	15B8	4100	2/19	53	17.1	--	--
Copper Ridge	16B2	4800	2/26	70	24.8	32.2	26.0
Forty-nine Meadows	15B3	5000	2/25	74	24.2	36.1	28.6*
Fourth of July Summit	16B3	3100	3/2	38	9.5	16.2	10.5*
Granite Peak	15B13A	6000	2/25	102	33.2	45.0	41.8*
Kellogg Peak +	16B5A	5560	Not Measured			39.1	28.2*
#Lookout	15B2	5250	3/[illegible]	104	31.9	41.3	32.3
Lost Lake	15B14A	6000	2/25	128	46.6	63.7	53.6*
Lower Sands Creek	16B1	3400	2/26	51	17.6	22.7	17.8
Medicine Ridge	15B4A	6150	2/25	104	34.0	45.3	43.6*
#Mosquito Ridge +	16A4A	5110	2/26	110	38.4	39.8	33.8*
Outlaw Creek	15B12A	3750	2/25	38	11.2	20.1	13.7*
Roland Summit +	15B5A	5200	2/26	85	29.7	37.2	34.6*
Sherwin	16C1	3200	2/28	34	11.1	17.8	14.1*
Sunset +	15B9A	5600	2/26	87	30.4	40.5	29.9*
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	2/27	16	5.6	6.9	6.2**
Blackwall Mountain	Canada	6250	2/27	64	23.7	30.2	31.2**
Bouleau Creek	Canada	5000	2/28	29	8.9	--	10.2**
Brookmere	Canada	3200	2/27	29	7.7	8.0	8.7
Carrs Landing Lower	Canada	2250	3/1	9	1.7	4.6	--
Carrs Landing Upper	Canada	3200	3/1	18	5.1	6.0	--
Clark +	19A8a	7000	Late report			19.8	--
Copper Mountain	Canada	4300	2/22	20	6.1	5.9	5.8**
Enderby	Canada	6250	2/25	79	27.4	38.0	32.4**
#Freezeout Meadows	20A2	5000	2/24	33	10.0	25.4	28.2
Hamilton Hill	Canada	4900	2/21	39	12.7	14.3	13.4**

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

+ 1953-67 period

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME		Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
OKANOGAN RIVER (Cont.)							
#Harts Pass	20A5A	6500	2/25	85	29.9	42.4	38.5
#Horseshoe Basin +	19A5a	7000	Late report			20.5	11.6*
Isintok Lake	Canada	5510	2/28	18	4.9	6.6	6.9**
Lost Horse Mountain	Canada	6300	2/27	24	4.8	6.6	7.8**
#Loup Loup	19A7	4650	2/26	28	9.9	16.4	8.9*
McCulloch	Canada	4200	2/26	20	5.0	7.8	6.1
Missezula Mountain	Canada	5100	2/27	23	6.2	7.5	8.8**
Mission Creek	Canada	6000	2/28	38	11.1	21.1	17.2**
Monashee Pass	Canada	4500	2/25	27	7.3	10.7	13.1**
Mount Kobau	Canada	5950	2/24	34	10.8	14.3	12.2**
Muckamuck +	19A9a	6390	Late report			20.4	--
Mutton Creek No. 1	19A1	5700	2/26	33	12.0	20.6	12.3
Mutton Creek No. 2	19A4	6000	2/26	34	12.2	18.9	12.7
New Copper Mountain	Canada	4300	2/20	23	6.8	7.0	5.3**
Nickel Plate Mountain	Canada	6200	2/27	27	5.9	6.1	6.9
Paysayten +	20A28a	4300	2/18	47	14.1	--	--
			Late report			18.7	14.2*
Postill Lake	Canada	4500	2/27	24	6.5	8.0	7.1
#Quartette Lake	Canada	4000	Not Measured			13.1	--
Rusty Creek	19A3	4000	2/26	24	7.3	12.2	7.0
Salmon Meadows	19A2	4500	2/26	30	9.8	13.6	9.7
Silver Star Mountain	Canada	6050	2/27	52	18.1	32.8	23.0**
Starvation Mountain +	19A10	6750	Late report			23.4	--
Summerland Reservoir	Canada	4200	3/1	23	6.7	8.7	8.3**
Touts Coulee	19A6	2845	2/26	15	4.3	7.4	3.7*
Trout Creek	Canada	4700	2/27	21	5.5	7.0	6.5
White Rocks Mountain	Canada	6000	2/26	46	15.3	20.5	18.1**
Brenda Mine	Canada	4800	2/25	30	9.2	--	--
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	Late report			37.4	25.8*
Dollar Watch +	20A29a	7000	Late report			28.1	23.7*
Harts Pass	20A5A	6500	2/25	85	29.9	42.4	38.5
Horseshoe Basin +	19A5a	7000	Late report			20.5	11.6*
Loup Loup	19A7	4650	2/26	28	9.9	16.4	8.9*
#Mutton Creek No. 1	19A1	5700	2/26	33	12.0	20.6	12.3
#Mutton Creek No. 2	19A4	6000	2/26	34	12.2	18.9	12.7
#Rusty Creek	19A3	4000	2/26	24	7.3	12.2	7.0
#Salmon Meadows	19A2	4500	2/26	30	9.8	13.6	9.7
#War Creek Pass +	20A31a	6500	2/18	99	29.7	--	--
			Late report			42.5	--

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

\+ 1953-67 period

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	2/18	86	25.8	--	--
			Late report			46.7	34.9*
Greenwood Flat +	20A25a	3540	2/18	74	22.2	--	--
			Late report			--	21.4*
Little Meadows +	20A24a	5275	2/18	121	36.3	--	--
			Late report			53.2	37.5*
Lyman Lake	20A23A	5900	Not Measured			62.3	50.3*
Park Creek Flat +	20A13a	2220	2/18	76	22.8	--	--
			Late report			29.6	31.0*
Park Creek Ridge	20A12A	4600	2/18	140	42.0	--	--
			Late report			52.1	41.7*
Petersons +	20A16a	3730	2/18	78	24.4	--	--
			Late report			31.1	32.5*
Rainy Pass	20A9	4780	2/25	80	27.0	40.2	37.0
Safety Harbor	20A30A	6300	2/18	65	19.5	--	--
			Late report			35.3	--
War Creek Pass +	20A31a	6500	2/18	99	29.7	--	--
			Late report			42.5	--
ENTIAT RIVER							
Brief	20B19	1600	2/25	27	10.0	13.4	6.3*
Entiat Meadows +	20A33a	4800	2/24	102	34.0	47.4	--
Entiat River Trail +	20A34a	3150	2/24	58	19.7	25.4	--
Fox Camp +	20A36a	6510	2/24	134	44.2	57.4	--
Pope Ridge	20B20	4300	2/25	50	16.8	25.6	--
Pugh Ridge +	20A32a	6400	2/24	103	34.0	34.4	--
Shady Pass	20A37	5000	2/26	57	19.0	--	--
Snow Brushy +	20A35a	3850	2/24	93	30.7	39.1	--
Tommy Creek +	20B21a	5300	2/24	70	23.1	30.7	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	2/13	72	25.5	37.2	24.0*
			2/27	75	28.3	36.8	23.9*
Berne-Mill Creek New	21B41SP	3240	2/27	71	28.6	33.2	--
Blewett Pass No. 2	20B2	4270	2/27	52	19.1	22.7	13.8
Chiwaukum G. S.	20B16	1810	2/13	46	14.2	17.4	10.5*
			2/27	42	16.2	17.4	10.5*
#Fish Lake	21B4	3371	2/25	80	31.1	36.8	31.7*
Lake Wenatchee	20B5	1970	2/13	44	14.1	20.4	13.0*
			2/27	38	14.7	21.0	13.4*

\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average
\# Not located directly on this drainage

\+ 1953-67 period

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME		Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
WENATCHEE RIVER (Cont.)							
Leavenworth R. S.	20B17	1127	2/13	27	9.5	13.0	4.3*
			2/26	17	7.3	13.8	2.6*
#Lyman Lake	20A23A	5900	Not Measured			62.3	50.3*
Merritt	20B18	2140	2/13	49	17.4	26.0	14.6*
			2/27	44	17.8	25.8	13.7*
Stevens Pass	21B1	4070	2/13	115	42.0	55.2	40.3
			2/27	115	43.9	57.9	44.4
Stevens Pass Sand Shed	21B45	3700	2/13	86	29.6	45.0	--
			2/27	85	32.6	44.2	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	2/25	34	12.3	16.4	6.5*
Scout-A-Vista	20B4	3400	2/25	34	11.7	15.5	7.0*
STEMILT CREEK							
Jump-Off	20B8	4450	2/25	39	12.4	15.4	6.8*
Stemilt Slide	20B6	5000	2/24	47	14.4	20.0	12.6*
Upper Wheeler	20B7	4400	2/24	39	13.6	18.8	8.5*
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	2/25	47	16.8	21.2	--
Colockum Creek Lower	20B23	4300	2/25	38	13.8	17.5	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	2/24	31	11.2	13.2	5.9*
Big Boulder Creek	21B9	3200	2/25	62	23.0	24.6	18.5*
#Blewett Pass No. 2	20B2	4270	2/27	52	19.1	22.7	13.8
Bumping Lake	21C8	3450	2/18	64	25.1	20.8	15.3*
			3/2	60	25.2	20.6	17.4
Bumping Lake New	21C36	3400	2/18	72	28.2	24.6	--
			3/2	67	27.9	24.0	--
#Cayuse Pass	21C6	5300	2/24	165	63.0	83.5	71.6*
Colockum Pass	20B9	5370	2/26	55	19.7	20.5	14.9*
Cooke Creek	20B10	4123	2/26	26	10.0	6.8	5.6*
#Corral Pass	21C13	6000	2/26	85	30.7	47.0	33.2*
Fish Lake	21B4	3371	2/25	80	31.1	36.8	31.7*
Green Lake	21C10	6000	2/24	92	34.3	36.2	25.7*
Grouse Camp	20B11	5385	2/27	52	19.5	20.7	16.1*
High Creek	20B12	2930	2/27	24	8.0	9.4	5.1*

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average

\+ 1953-67 period

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
YAKIMA RIVER (Cont.)							
Joe Lake +	21B46a	4624	2/24	147	55.9	70.5	--
Lake Cle Elum	21B14M	2200	2/12	35	12.1	17.6	8.5*
			2/28	29	12.2	18.2	8.5
Lemah Creek +	21B47a	3327	2/24	120	45.6	50.8	--
Manashtash	20C1	3935	2/25	27	9.6	9.4	4.0*
Morse Lake	21C17	5400	2/25	133	54.5	64.2	47.0*
Nanum	21B39	2340	2/27	37	12.8	11.5	9.8*
#Olallie Meadows	21B2	3625	2/25	85	37.3	52.1	40.4
#Satus Pass	20D1	4030	2/27	34	12.8	14.4	--
#Stampede Pass	21B10	3000	2/16	107	37.6	60.0	--
			3/2	99	33.6	67.5	38.4
Trail Creek	20B14	3360	2/26	0	0.0	6.0	--
Tunnel Avenue	21B8	2450	2/12	54	19.0	29.9	20.2*
			2/27	56	21.8	30.6	21.6
Walters Flat	20B15	3360	2/27	28	9.8	11.0	6.6*
Waptus Lake +	21B49a	3024	2/24	114	43.3	--	--
White Pass (E. Side)	21C28	4500	2/13	61	21.7	30.0	21.5*
			2/27	64	24.1	30.9	21.1*
White Pass (L. Lake)	21C27	4500	2/13	68	26.2	37.5	22.6*
			2/27	75	30.3	37.4	26.1*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	2/24	31	11.2	13.2	5.9*
#Green Lake	21C10	6000	2/24	92	34.3	36.2	25.7*
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	2/25	62	23.9	30.2	--
MILL CREEK							
Homestead	17C1	4030	2/27	12	5.2	17.6	7.4*
Martin Springs	17C2	4400	2/27	29	11.6	21.6	12.5*
Tollgate	18D3M	5070	2/25	65	26.2	26.7	21.0
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	2/24	91	35.4	56.1	38.9*
#Surprise Lakes	21C13A	4250	2/24	92	39.8	59.1	42.0

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average 1953-67 period

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME		Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
KLICKITAT RIVER							
Satus Pass	20D1	4030	2/27	34	12.8	14.4	--
West Fork Cabin	21C15	3000	Not Measured			--	7.9*
WIND RIVER							
#Old Man Pass	21D19	3100	2/24	25	9.6	35.3	15.8*
LEWIS RIVER							
Blue Lake +	21C22a	4800	2/24	175	76.6	88.0	70.4*
Bob's Trail	21C21	2200	2/24	14	5.6	27.5	12.4*
Calamity Ridge +	22D1a	2500	2/24	0	0.0	26.9	--
Council Pass +	21C18a	4200	2/24	84	31.9	46.4	34.8*
#Cultus Creek	21C12	4000	2/24	91	35.4	56.1	38.9*
Divide Meadow +	21C29a	5600	2/24	114	43.3	53.8	47.7*
Grand Meadow	21C25	3500	2/24	51	19.2	31.7	22.9*
Lone Pine Shelter	21C26	3800	2/24	75	26.9	47.4	31.4*
Marble Mountain +	22C5a	3200	2/24	28	12.0	55.9	--
#Mosquito Meadows	21C19	4100	2/24	77	27.7	44.4	34.4
New Muddy River	22C6	1400	2/24	0	0.0	29.6	--
Old Man Pass	21D19	3100	2/24	25	9.6	35.3	15.8*
Plains of Abraham +	22C1a	4400	2/24	183	78.8	83.2	55.7*
Smith Creek Road	22C4	2100	2/25	30	13.2	39.4	13.9*
Spencer Meadow +	21C20a	3400	2/24	24	9.6	38.0	20.5*
Surprise Lakes	21C13A	4250	2/24	92	39.8	59.1	42.0
Table Mountain +	21C24a	4200	2/24	105	38.8	51.2	40.6*
Timbered Peak +	21D18a	3000	2/24	6	2.5	39.4	16.4*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	2/24	165	63.0	83.5	71.6*
Mosquito Meadows	21C19	4100	2/24	77	27.7	44.4	34.4*
Ohanapecosh	21C32	2200	2/27	26	10.5	21.6	14.8*
Packwood Lake	21C31	2870	2/25	16	6.2	22.0	12.0*
Pigtail Peak	21C33	5900	2/13	112	43.1	71.1	--
			2/27	116	44.3	65.8	--
#Plains of Abraham +	22C1a	4400	2/24	183	78.8	83.2	55.7*
Potato Hill	21C14	4500	2/25	72	27.6	41.9	25.7*
#White Pass (E. Side)	21C28	4500	2/13	61	21.7	30.0	21.5*
			2/27	64	24.1	30.9	21.1*

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average

1953-67 average

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
COWLITZ RIVER (Cont.)							
#White Pass (L. Lake)	21C27	4500	2/13	68	26.2	37.5	22.6*
			2/27	75	30.3	37.4	26.1*
Willame Creek	21C30	3250	2/24	48	18.0	31.3	27.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	2/26	78	33.3	46.2	38.8*
Longmire	21C3	2760	2/26	12	4.2	16.2	8.4*
New Paradise Park	21C35	5500	2/26	141	59.8	57.6	--
Stem Glade	21C1	5050	2/26	131	54.3	66.6	59.4*
WHITE RIVER							
#Cayuse Pass	21C6	5300	2/24	165	63.0	83.5	71.6*
Corral Pass	21C13	6000	2/26	85	30.7	47.0	33.2*
#Morse Lake	21C17	5400	2/25	133	54.5	64.2	47.0*
White River Campgr	21C34	4000	Not Measured			--	--
GREEN RIVER							
Airstrip	21B24	1800	2/24	0	0.0	13.9	--
Charley Creek	21B25	1200	2/24	0	0.0	9.0	--
Grass Mtn No. 2	21B27	2900	2/26	40	15.1	31.2	18.1*
Grass Mtn No. 3	21B28	2100	2/26	0	0.00	20.6	--
Lester Creek	21B29	3100	2/26	52	18.0	32.1	20.7*
Lynn Lake	21B50	4000	2/24	27	11.1	New Course	
Sawmill Ridge	21B29	4700	2/26	69	24.6	37.8	36.5*
Snowshoe Butte SP	21B43SP	5000	2/25	116	39.4	64.0	--
Stampede Pass	21B10	3000	2/16	107	37.6	60.0	34.8
			3/2	99	33.6	67.5	38.4
Twin Camp	21B30	4100	2/26	57	21.3	26.2	24.9*
CEDAR RIVER							
City Cabin	21B3	2390	2/26	27	11.1	29.8	14.8*
Mt. Gardner	21B21	3300	2/26	16	7.4	32.0	15.4*
Mt. Lindsay	21B16	2500	2/26	23	8.4	29.2	12.9*
Mt. Washington	21B15	3000	2/26	0	0.0	19.7	7.2*
Rex River	21B17	2400	2/26	0	0.0	16.2	12.1*
S. F. Cedar	21B6	3000	2/26	23	10.1	33.6	19.2*
Tinkham Creek	21B20	3400	2/26	56	22.8	38.6	20.6*

Not located directly on this drainage
* Adjusted 1953-67 average

\+ 1953-67 period

APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	2/25	69	28.6	57.6	--
#Lake Elizabeth	21B19	2900	2/25	91	37.5	61.2	33.1*
Olallie Meadows	21B2	3625	2/25	85	37.3	52.1	40.4
S. F. Tolt	21B18	1900	2/25	0	0.0	18.4	--
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	2/25	91	37.5	61.2	33.1*
#Stevens Pass	21B1	4070	2/13	115	42.0	55.2	40.3
			2/27	115	43.9	57.9	44.4
#Stevens Pass Sand Shed	21B45	3700	2/13	86	29.6	45.0	--
			2/27	85	32.6	44.2	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	2/24	23	8.3	22.8	14.0*
Beaver Pass	21A1	3680	2/24	67	23.9	40.9	29.3*
#Cloudy Pass +	20A22a	6500	2/18	86	25.8	--	--
						46.7	34.9*
Devils Park	20A4	5900	2/25	80	28.6	38.2	39.1
Freezeout Cr. Trail	20A1	3500	2/24	33	10.0	14.6	12.6
Freezeout Meadows	20A2	5000	2/24	55	19.3	25.4	28.2
#Harts Pass	20A5A	6500	2/25	85	29.9	42.4	38.5
Klesilkwa	Canada	3700	2/28	26	6.7	14.3	11.2
Lake Hozomeen	21A2	2600	2/24	24	6.9	12.6	9.0*
#Lyman Lake +	20A23A	5900	Not Measured			62.3	50.3*
Meadow Cabins	20A8	1900	2/25	10	3.9	11.2	7.2*
New Tashme	Canada	2500	3/1	28	8.3	14.6	9.9
Quartette Lake	Canada	4000	Not Measured			13.1	--
#Rainy Pass	20A9	4780	2/25	80	27.0	40.2	37.0
Thunder Basin	20A7	4200	2/25	48	16.4	25.2	20.5*
Brown Top +			2/24	115	40.2	New Marker	
BAKER RIVER							
Baker Pass +	21A11A	3800	Late report			73.6	64.4*
						69.3	65.3*
Easy Pass +	21A7A	5200	Late report			66.4	--
						67.2	82.1*
Jasper Pass +	21A6A	5400	Late report			93.6	77.3*
						87.4	87.3*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average

\+ 1953-67 period

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
BAKER RIVER (Cont.)							
Marten Lake +	21A9A	3600	Late report			76.4	--
						79.0	73.3*
Mount Blum +	21A18a	5800	Late report			51.6	--
						53.3	--
#Panorama New	21A26	4300	2/12	102	44.0	68.0	--
			2/27	109	47.8	64.7	
Rocky Creek +	21A12A	2100	Late report			39.6	26.2*
						39.0	23.3*
Schreibers Meadow +	21A10A	3400	Late report			65.6	55.9*
						65.5	58.1*
S. F. Thunder Creek +	21A14A	2200	Late report			21.6	--
						20.2	4.5*
Watson Lakes +	21A8A	4500	Late report			64.0	59.8*
						65.9	61.3*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	3/1	82	32.0	54.8	--
Canyon +	21A20a	5100	3/1	92	35.9	58.8	--
Glacier Creek	21A23	3700	2/25	39	12.5	29.1	--
Panorama New	21A26	4300	2/12	102	44.0	68.0	--
			2/27	109	47.8	64.7	--
Twin Lakes +	21A21a	5200	3/1	141	55.0	76.0	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	2/25	50	17.0	26.2	20.8
MORSE CREEK							
Cox Valley	23B14	4500	2/26	82	29.8	46.1	--
Deer Park G. S.	23B13	4850	2/25	25	7.8	17.8	--
ELWHA RIVER							
Hurricane	23B3	4500	2/27	45	14.3	30.2	21.8*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average

+ 1953-67 period

WSFB-X4

APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
SKOKOMISH RIVER							
Black & White	23B7	4200	2/24	66	24.6	48.0	32.3*
Black & White Lakes	23B6	4700	2/24	103	45.8	62.6	49.4*
Four Streams	23B10	3000	2/24	38	13.7	44.7	--
Home Sweet Home	23B5	5200	2/24	135	52.9	78.3	64.2*
Sundown Pass	23B8	3900	2/24	98	41.7	73.2	45.4*

* Adjusted 1953-67 average

\+ 1953-67 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Water Resources
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.

and

DEPARTMENT of WATER RESOURCES STATE of WASHINGTON

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
APR. 1, 1970

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Cente Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P O Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA-SCS-PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

H. MAURICE AHLQUIST
DIRECTOR
DEPARTMENT OF WATER RESOURCES
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Report prepared by

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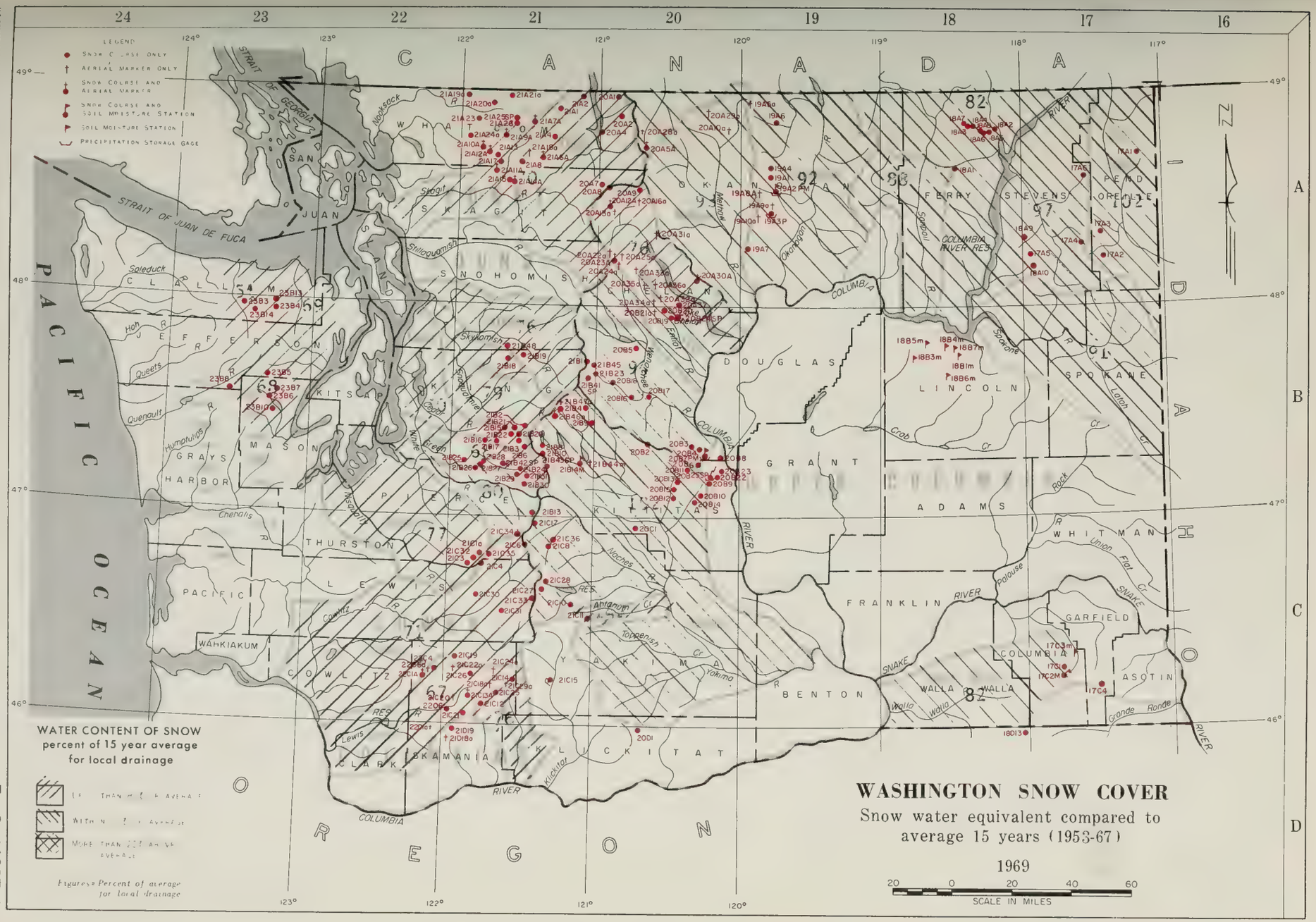
WASHINGTON SNOW COVER
Snow water equivalent compared to average 15 years (1953-67)
1969
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
Figures = Percent of average for local drainage
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
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ASOTIN
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER RES.
COLUMBIA RIVER
SNAKE RIVER
Nooksack
Skagit
Stillaguamish
Skykomish
Snoqualmie
Tolt
Puyallup
White
Nisqually
Cowlitz
Lewis
Kalama
Soleduck
Hoh
Queets
Quinault
Humptulips
Chehalis
Skookum
Methow
Okanogan
Similkameen
Entiat
Wenatchee
Naches
Yakima
Toppenish
Kiickitat
Pend Oreille
Spokane
Lewis
Kalama
Kiickitat
Walla Walla
Grande Ronde
Palouse
Rock
Crab
Union Flat Cr.
Lawrence Cr.
Abrahamson Cr.
Toppenish Cr.
Yakima
Kiickitat
Lewis
Kalama
Walla Walla
Grande Ronde
Palouse
Rock
Crab
Cr

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2000

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	38N	35E	4000
Cabin Creek	18A8	5	38N	36E	3100
Goat Creek	18A4	26	38N	35E	3596
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4000

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4900
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	[illegible]	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	6400
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	13E	3700
[illegible]	[illegible]	[illegible]	29N	20E	5310

Clockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clockum Creek	20B22	11	20N	20E	5300
Clockum Creek No. 2	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2200

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3500
Bumping Lake	21C8	22	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	[illegible]
Clockum Pass	20B9	25	20N	20E	[illegible]
Cooke Creek	20B10	17	19N	20E	4100
Domery Flat	21B4m	15	20N	14E	[illegible]
Fish Lake	21B4	34	21N	14E	3471
Green Lake	21C10	[illegible]	17N	13E	6300
Grouse Camp	20B11	20	21N	19E	5385
High Creek	20B12	34	20N	14E	[illegible]
Joe Lake	21B4 a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	[illegible]
Lemah Creek	21B47a	7	23N	13E	3320
Manashtash	20C1	24	17N	16E	3335
Morse Lake	21C17	6	16N	11E	5411
Naneum	20B13	4	20N	14E	[illegible]
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	9N	42E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5300
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	14E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	12	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	8400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Mazama Park	21A24a	2	37N	7E	4570
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	29	29N	6W	
Deer Park G. S.	23B13	1	28N	5W	4850

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

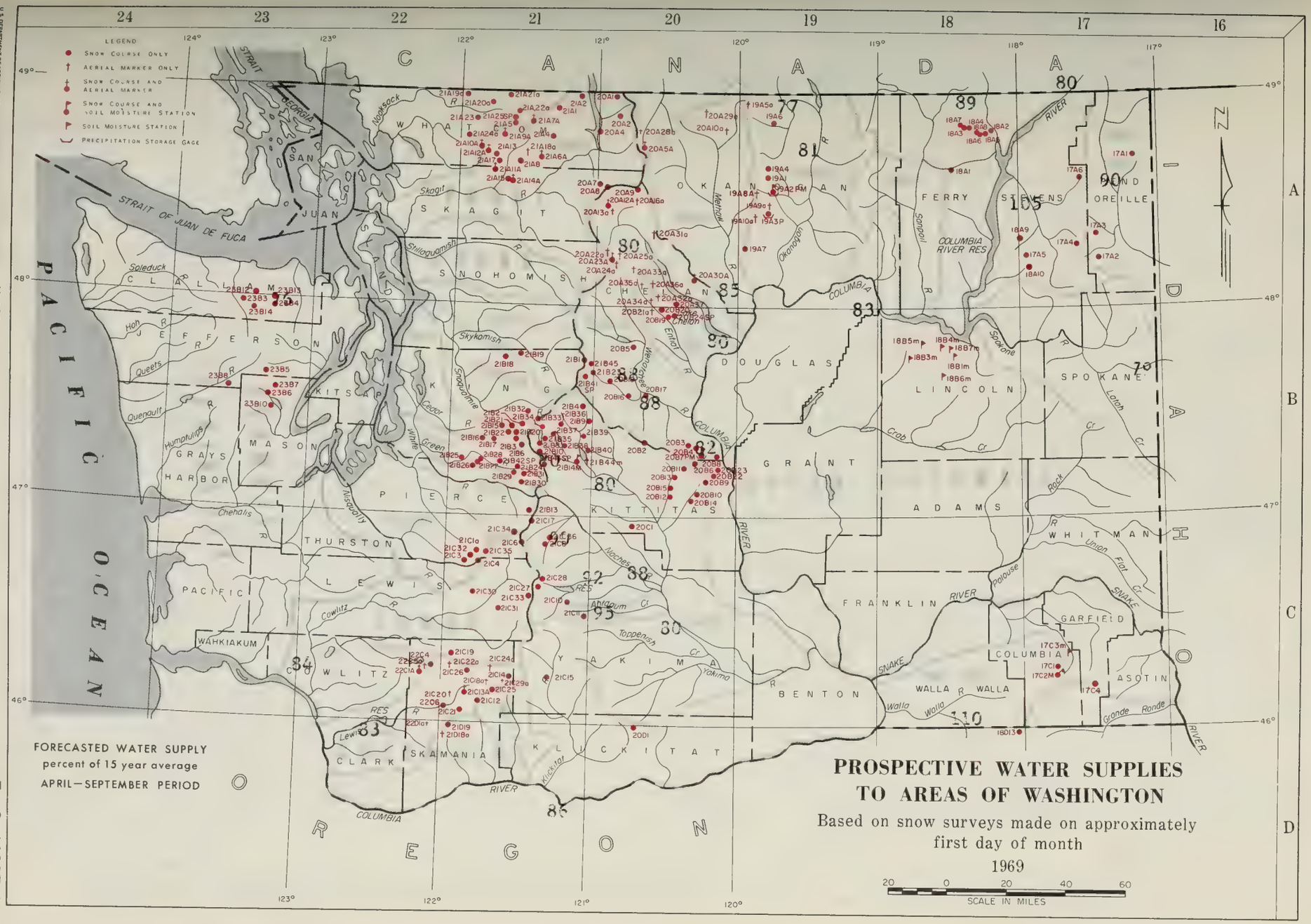
Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW



U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

M-929

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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Clockum Creek					
Clockum Creek	20B22	11	20N	20E	5300
Clockum Creek No. 2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Clockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Cooper Pass	21B36	33	23N	13E	3300
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Hyak	21B34	15	22N	11E	2600
Kachess Dam	21B38	34	21N	13E	2220
Kachess Peninsula	21B37	32	22N	13E	2280
Lake Cle Elum	21B14M	15	20N	14E	2200
Manashtash	20C1	24	17N	16E	3935
Morgan Creek	21B40	9	21N	14E	2320
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Noble Creek	21B35	10	21N	12E	2520
Salmon La Sac	21B39	16	22N	14E	2340
Snoqualmie Pass	21B33	4	22N	11E	3020
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1400
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5900
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Bandera Air Strip	21B32	16	22N	10E	1635
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3[illegible]0
Devils Park	20A4	34	38N	10E	5000
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	6	40N	14E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	39N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	7E	3400
S. F. Thunder Creek	21A14A	20	38N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	12	38N	9E	1600
Watson Lakes	21A[illegible]	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	[illegible]	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-20	38N	7E	3700
Hannegan Pass	21A22a	8	39N	9E	5000
Mazama Park	21A24a	2	39N	7E	4500
Panorama	21A5	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	15	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	24	29N	6W	
Deer Park G. S.	23B13	1	28N	5W	4850
Morse Creek	23B12	25	29N	7W	5425
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	26	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND
NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
April 1, 1970

* *
* The month of March, in the State of Washington and surrounding *
* territory, was a month of above-normal temperatures and below- *
* normal precipitation. As a result of this lack of input on to *
* the watersheds, forecasts of spring and summer flows have been *
* decreased. The snowpack is now lower than was reported last *
* month and the reservoirs have less water in storage. This be- *
* low-normal precipitation and above-normal temperature has also *
* affected the runoff over the State with only a few isolated *
* basins reporting above-normal runoff during the month. The *
* snow cover has a high of 42 percent above normal for the Ah- *
* tanum Creek watershed in the Yakima basin. The low for the *
* State occurred in the Cedar watershed; this being 50 percent *
* of normal. It appears that the snowpack deficit on the west *
* side improves east of the Cascade Range through the central *
* area of the State until just west of the Columbia River itself, *
* where the snowpack is at its greatest, percentagewise. Then *
* there is a general deterioration of the snowpack toward the *
* eastern boundary. The reservoirs in the State generally con- *
* tinue to have below-normal amounts of stored water as of the *
* first of April with the key irrigation reservoirs currently *
* having 54 percent of capacity in stored water while normally *
* at this time of year the amount of reservoired water is 67 per- *
* cent. Reservoir outflow has been below normal but local melt- *
* ing below these reservoirs has accounted for much of the above- *
* normal streamflow which occurred during the month. *
* *

SNOW COVER

Above-normal snowpacks are now found only in the Pend Oreille drainage and the Yakima River watershed with the highest, percentagewise, at Ahtanum Ranger Station, elevation 3100 feet. The snowpack in this area is 67 percent above normal. The other snow course in this drainage, Green Lake, elevation 6000 feet, has a snowpack that is 18 percent above normal. In this southcentral portion of the Yakima watershed most of the snow courses measured have above-normal water equivalents as of April 1 but farther to the north the snowpacks are less along the Cascade Divide with some above-normal snowpacks showing up in the northeastern portion of the watershed. The Chelan Lake watershed looks similar to the Puget Sound drainage watersheds, primarily because all the snow cover with any length of record is on the Cascade Range dividing the watersheds. It is unfortunate that we do not have enough low-elevation easterly snow courses in this area with sufficient length of record to correlate the total watershed as a whole. In the snow cover picture for the State these are the only abnormalities with the rest of the State following a general trend from one watershed to the next.

RESERVOIRS

All reservoirs, power and irrigation, in the State of Washington have less than normal amounts of water in storage with the irrigation reservoirs having the lesser amounts. Grand Coulee has 90 percent of average stored water while Bumping Lake has only 51 percent. Unless our warm, dry weather turns into normal temperatures and precipitations there could be some water shortages even at these reservoir sites but with normal precipitation and temperature all reservoirs should comfortably fill with the spring runoff.

PRECIPITATION

As stated before precipitation was low during the month of March which is a continuation of the below-normal rainfall experienced throughout this winter. Only in the southeastern portion of the State have above-normal precipitations occurred. During the month of March rainfall in this area was 8 percent above normal and for the winter months the accumulation has been 15 percent above normal. These division averages, as reported by the United States Weather Bureau, had precipitation ranging from 60 percent of normal in the southwestern portion of the State to 77 percent in the Pend Oreille-Spokane area. For the winter months this rainfall ranged from 30 percent below normal for the Columbia River in Canada to a high of 8 percent below normal for the northcentral area of the State. These figures exclude that which occurred in the southeastern area.

SOIL MOISTURE

The soil moisture story is a continuation of our precipitation story with the near-normal amounts occurring in the southeastern portion of the State and the driest areas in the northcentral area. One of the key stations, Trout Creek, will not be measured for a few months until a new instrument can be procured for this area. The observer for this station was burned out of his home and the soil moisture instrument was lost. Lack of melting in the Wenatchee drainage is the reason for the below-normal amount of soil moisture. In the Yakima area these soil moisture stations have been melting out and the soil mantle in this area will start to dry up.

STREAMFLOW

Streamflow forecasts have generally been reduced because of the lack of input in both snow and rainfall during the month of March. Exceptions to this are in the Pend Oreille drainage where above normal rainfall in the Upper Clark Fork have increased the runoff potential as much as 9 percent. Forecasts now range from a high of 10 percent above normal in the Mill Creek drainage to a low of 24 percent below normal for the Dungeness River in the Olympic Peninsula and 23 percent below for the Similkameen. Runoff during the month of March ranged from 30 percent above normal for the Klickitat River to a low of 38 percent below normal for the Okanogan and Similkameen Rivers. The near-normal flows expected in the Snake River drainage continue to improve the situation on the lower Columbia but damaging high flows are not expected.

STREAMFLOW FORECASTS - APRIL 1970

The following summarized runoff forecasts are based prinicpllay on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1969 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1969	1968	1967	15-yr Average 1953-67
COLUMBIA BASIN							
Columbia River System							
Columbia River at Birchbank 1/	37000	80	Apr-Sep	47990	47182	52579	46368
	28500	76	Apr-Jul	40549	37092	42969	37480
	20000	74	Apr-Jun	32212	25280	30604	27040
Columbia River at Grand Coulee 1/	57800	83	Apr-Sep	74687	63784	73739	69466
	49000	83	Apr-Jul	65696	51685	63282	58909
	36000	78	Apr-Jun	54604	38183	48697	45899
Columbia River bl Rock Island Dam 1/	62800	82	Apr-Sep	80257	70298	82547	76241
	51500	80	Apr-Jul	71039	57403	71130	64770
	39600	78	Apr-Jun	59289	42326	54559	50387
Columbia River at The Dalles, OR 1/	90000	86	Apr-Sep	108959	89008	109176	105176
	75000	83	Apr-Jul	96628	72494	94408	90050
	59600	82	Apr-Jun	82719	55499	74179	72410
Pend Oreille River System							
Pend Oreille River bl Box Canyon	14400	90	Apr-Sep		12869	16492	15991
	13100	89	Apr-Jul		11077	15587	14772
	11000	86	Apr-Jun		9471	13362	12746
Kettle River System							
Kettle River nr Laurier	1710	89	Apr-Sep		1851	1923	1918
	1630	90	Apr-Jul		1720	1891	1821
	1470	89	Apr-Jun		1560	1750	1644

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Rossevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - April 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr Average 1953-67
Kettle River System (Cont.)							
Colville River							
at Kettle Falls	160	105	Apr-Sep	270	63	129	153
	150	106	Apr-Jul	256	54	123	141
	135	103	Apr-Jun	240	50	116	131
Spokane River System*							
Spokane River							
at Post Falls ID 2/	2500	79	Apr-Sep		1681	2811	3151
	2400	79	Apr-Jul		1577	2752	3055
	2300	79	Apr-Jun		1487	2618	2913
Okanogan River System**							
Similkameen River							
nr. Nighthawk	1170	77	Apr-Sep	1170	1449	1678	1525
	1100	78	Apr-Jul	1121	1359	1607	1419
	950	79	Apr-Jun	1022	1158	1396	1197
Okanogan River							
nr. Tonasket	1400	81	Apr-Sep	1448	1567	1822	1738
	1280	81	Apr-Jul	1353	1429	1740	1578
	1100	83	Apr-Jun	1231	1202	1513	1318
Methow River System**							
Methow River							
nr. Pateros	895	85	Apr-Sep		973	1256	1054
	835	85	Apr-Jul		906	1198	981
	705	85	Apr-Jun		767	1034	834
Chelan River System							
Chelan River							
at Chelan 3/	1010	80	Apr-Sep	1331	1224	1366	1266
	910	81	Apr-Jul	1224	1068	1231	1119
	720	83	Apr-Jun	1090	798	966	870
Stehekin River							
at Stehekin	720	80	Apr-Sep		868	1004	904
	625	81	Apr-Jul		735	868	772
	480	82	Apr-Jun		535	674	586

* Forecasts made by Morlan W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - April 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr Average	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr. Avg 1953-67
Wenatchee River System							
Wenatchee River at Plain	1175	88	Apr-Sep		1163	1324	1333
	1070	89	Apr-Jul		1028	1213	1204
	875	92	Apr-Jun		812	955	952
Wenatchee River at Peshastin	1600	88	Apr-Sep	1953	1526	1797	1814
	1480	90	Apr-Jul	1840	1355	1662	1651
	1210	92	Apr-Jun	1669	1078	1326	1316
Stemilt Basin nr. Wenatchee	123	--	May-Sep			146*	--
Yakima River System							
Yakima River nr. Martin 4/	115	80	Apr-Sep	160	97	115	145
	105	78	Apr-Jul	148	79	113	134
	95	82	Apr-Jun	140	73	102	116
Yakima River at Cle Elum 5/	775	80	Apr-Sep		695	868	968
	720	81	Apr-Jul		589	801	885
	640	84	Apr-Jun		510	695	762
Yakima River nr. Parker 6/	1390	80	Apr-Sep			1543	1738
	1390	81	Apr-Jul			1584	1722
	1320	83	Apr-Jun			1480	1583
Kachess River nr. Easton 7/	100	79	Apr-Sep	134	76	100	128
	95	78	Apr-Jul	132	66	98	122
	90	84	Apr-Jun	125	62	90	107
Cle Elum River nr. Roslyn 8/	385	79	Apr-Sep	501	358	431	485
	350	79	Apr-Jul	480	310	405	445
	310	83	Apr-Jun	444	263	347	373
Bumping River nr. Nile 9/	135	90	Apr-Sep	151	105	126	150
	125	91	Apr-Jul	142	93	117	138
	107	94	Apr-Jun	133	73	103	114

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - April 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr. Average 1953-67
Yakima River System (Cont.)							
American River							
nr. Nile	115	90	Apr-Sep		98	128	129
	107	89	Apr-Jul		88	119	120
	92	93	Apr-Jun		78	100	99
Tieton River							
at Tieton Dam 10/	230	92	Apr-Sep	278	166	241	251
	198	92	Apr-Jul	249	134	210	215
	160	93	Apr-Jun	224	111	169	172
Naches River							
nr. Naches 11/	790	88	Apr-Sep		592	876	899
	720	88	Apr-Jul		511	810	819
	630	90	Apr-Jun		437	694	698
Ahtanum Creeks							
nr. Tampico 12/	46	95	Apr-Sep		31	56	49
	42	93	Apr-Jul		27	52	45
	36	90	Apr-Jun		24	45	40
Lower Columbia River System							
Mill Creek							
nr. Walla Walla	32	110	Apr-Sep		15	23	29
	28	112	Apr-Jul		11	20	25
	25	109	Apr-Jun		10	18	23
Lewis River							
at Ariel 13/	1130	83	Apr-Sep		1137	1107	1358
	980	82	Apr-Jul		862	994	1197
	880	83	Apr-Jun		782	889	1059
Cowlitz River							
at Castle Rock 14/	2360	84	Apr-Sep	2722	2381	2521	2813
	2070	83	Apr-Jul	2384	1850	2258	2481
	1780	84	Apr-Jun	2178	1630	1934	2119
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River							
nr. Sequim	130	76	Apr-Sep		134	204	172
	109	77	Apr-Jul		107	169	141
	82	78	Apr-Jun		78	124	105

10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about April 1, 1970, as per cent of the same date in 1969 and 1968 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1970 Snow Water Expressed as per cent of 1969	1968	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	12 - 17	6 - 33	79	118	102*
Kettle	10 - 13	7 - 32	63	114	82*
Colville	3 - 5	11	72	100	97*
Spokane	8 - 12	6 - 33	77	167	91*
Sanpoil	1	31	60	93	88*
Okanogan	26 - 31	5 - 35	86	93	92*
Methow	7 - 9	9 - 28	74	95	98*
Chelan	3 - 5	9 - 38	63	73	76*
Entiat	1 - 8	3 - 5	66	122	184*
Wenatchee	8 - 11	9 - 38	76	188	94*
Yakima	14 - 22	4 - 50	84	192	102*
Ahtanum	1 - 2	21	82	130	142*
		LOWER COLUMBIA			
Mill Creek	1 - 3	5 - 20	56	900	82*
Klickitat	1	26	55	--	--
White Salmon	2	26	69	136	76*
Lewis	13 - 14	9 - 26	57	122	67*
Cowlitz	7 - 8	7 - 30	64	151	71*
		PUGET SOUND			
Nisqually	2 - 3	5 - 20	88	174	77*
White	3	14 - 30	74	111	80*
Green	5 - 6	9 - 24	64	337	68*
Cedar	2 - 5	8 - 9	31	1236	50*
Snoqualmie	2 - 3	2 - 24	62	208	79*
Skykomish	2 - 3	12 - 24	63	197	76*
Skagit	10	19 - 38	67	87	70*
Nooksack	4 - 5	2 - 8	71	145	--
		OLYMPIC PENINSULA			
Skokomish	4 - 5	6 - 20	55	68	68*
Elwha	1	20	46	78	51*
Dungeness	1	20	65	96	69*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM			1970	1969	1968	Normal[1]
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	133.8	227.5	156.5	164.0
Columbia	Franklin D. Roosevelt Lake	5232.0	2111.5	***	585.2	2359.6
Columbia	Banks Lake	761.8	698.9	693.5	682.9	499.3
Okanogan	Conconully Reservoir	13.0	8.0	5.2	7.2	6.7
Okanogan	Salmon Lake	10.5	7.4	6.3	8.9	8.5
Chelan	Lake Chelan	676.1	22.0	88.2	437.3	169.0
		YAKIMA				
Yakima	Keechelus Lake	157.8	76.0	102.2	146.4	102.8
Kachess	Kachess Lake	239.0	181.5	181.5	225.1	184.4
Cle Elum	Lake Cle Elum	436.9	199.5	271.3	390.2	278.8
Bumping	Bumping Lake	33.7	7.2	3.3	16.6	14.0
Tieton	Rimrock Lake	198.0	110.1	158.2	186.1	135.8
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	568.5	480.3	1154.5	715.2
Skagit	Diablo Reservoir	90.6	86.6	88.3	85.4	85.5
Skagit	Gorge Reservoir	9.8	8.4	8.1	7.9	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - April

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity	Soil Moisture Content (Inches) as of April 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	10.4	9.8	9.4
Krause	18B4m	2440	48	13.6	9.6	8.4	8.7
Sheffels	18B5m	2360	48	13.6	8.2	7.0	6.6
Sherman	18B7m	2440	48	13.6	8.2	6.7	7.8
Wheatridge	18B6m	2200	48	13.6	9.5	9.5	9.2
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.4	3.2	3.6
Trout Creek	3-M	3600	48	7.3	Not Measured	6.5	4.6
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	5.6	--	4.9
Lake Cle Elum	21B14M	2200	48	12.8	9.2	--	9.0
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.4	10.9	6.8
Helmers	17C2M	4400	48	12.0	11.2	11.5	11.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.9	10.7	12.0

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) : Total Capacity	Soil Moisture Content (Inches) as of Oct 1 1969	1968	1967
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.5	7.1	5.2
Krause	18B4m	2440	48	13.6	5.9	5.2	4.9
Sheffels	18B5m	2360	48	13.6	4.5	4.9	3.7
Sherman	18B7m	2200	48	13.6	4.2	3.9	3.6
Wheatridge	18B6m	2200	48	13.6	5.4	4.6	4.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.7	2.7	1.5
Trout Creek	3-M	3600	48	7.3	3.8*	4.1	4.0
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	Not available	3.1	4.8
Lake Cle Elum	21B14M	2200	48	12.8	Not available	5.2	9.1
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.1	7.4	5.4
Helmers	17C2M	4400	48	12.0	7.1	7.6	6.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.8	5.5	5.6

* Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

DRAINAGE DIVISIONS	FALL Sep - Oct 1969 2/ Observed	Departure	WINTER Nov 1969 - Mar 1970 2/ Observed	Departure
Columbia in Canada	4.73	+ 0.84	8.94	- 3.75
Pend Oreille - Spokane	3.81	- 0.07	16.52	- 1.73
Northeastern Washington	2.91	+ 0.66	10.07	- 1.02
Southeastern Washington	2.56	- 0.09	14.26	+ 1.85
Central Washington	3.83	- 0.61	22.65	- 4.48
North Central Washington	2.02	+ 0.61	5.86	- 0.48
Northwest Slope Cascades	12.20	+ 0.53	38.97	-13.17
Southwest Slope Cascades	9.55	+ 1.83	36.37	- 4.50

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse drainages.
Central Washington	- Yakima, Wenatchee and Chelan drainages.
North Central Washington	- Methow and Okanogan drainages.
Northwest Slope Cascades	- Puget Sound drainages.
Southwest Slope Cascades	- Lower Columbia drainages.

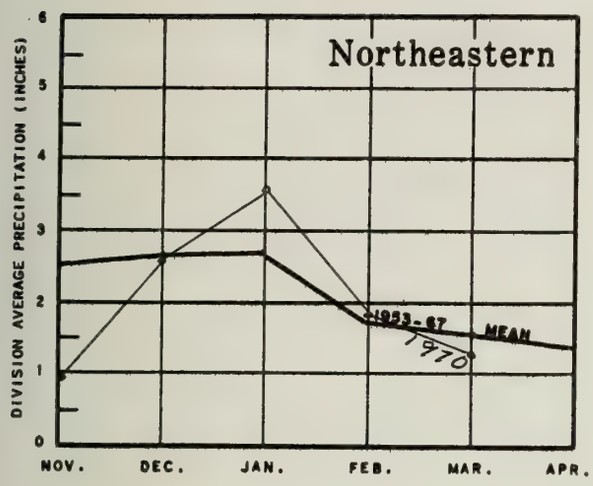
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

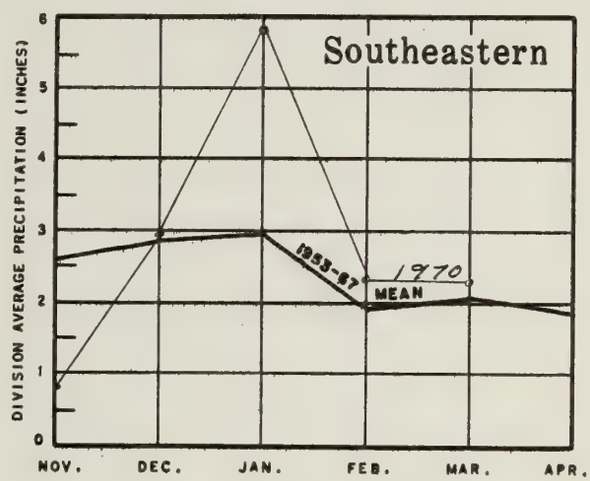
2/ - Departure from 15-year (1953-67) drainage division average.

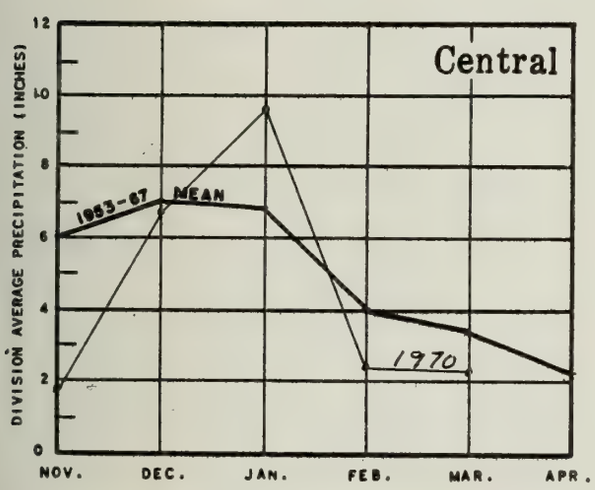
WASHINGTON VALLEY PRECIPITATION

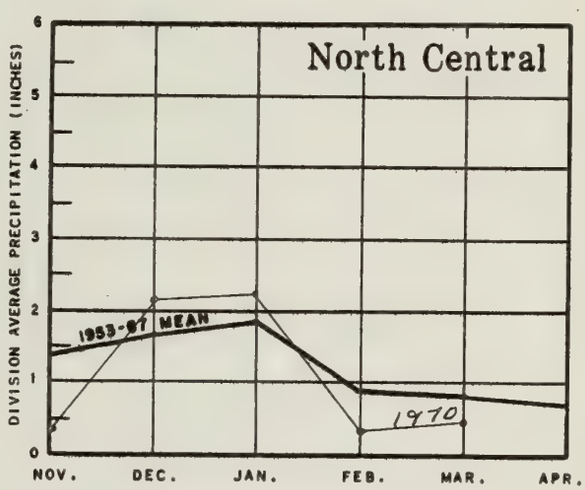
1969-1970

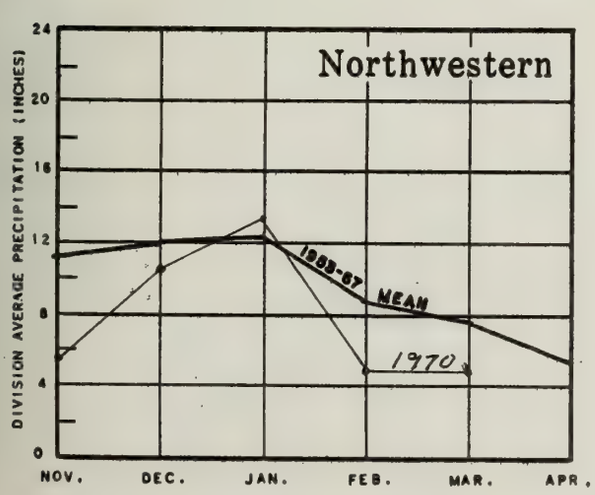
DRAINAGE AREAS

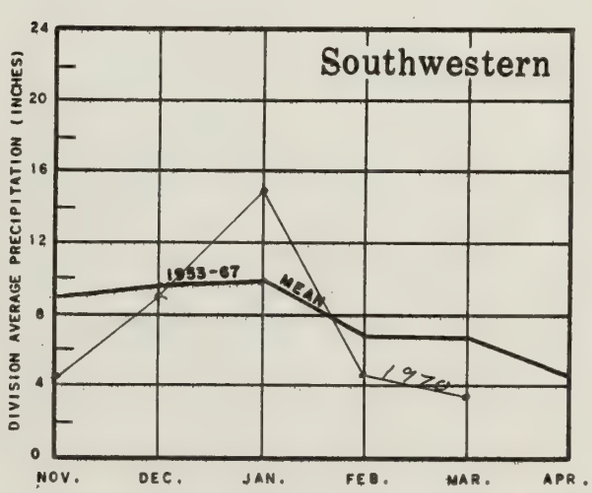










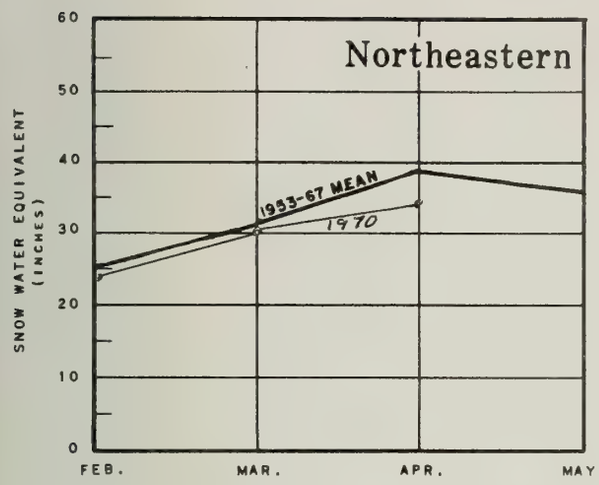


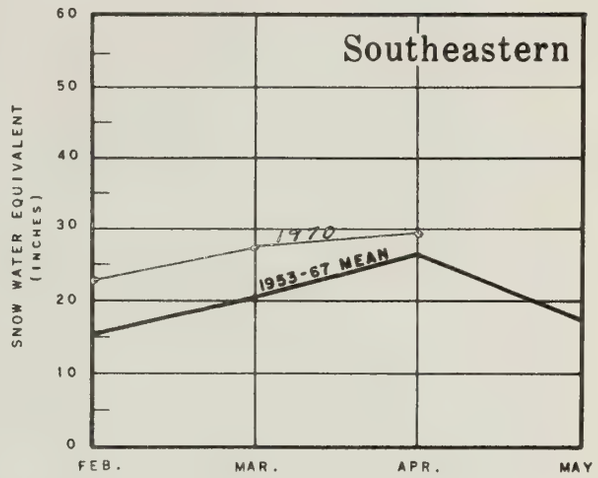
Preliminary Analysis by U. S. Weather Bureau

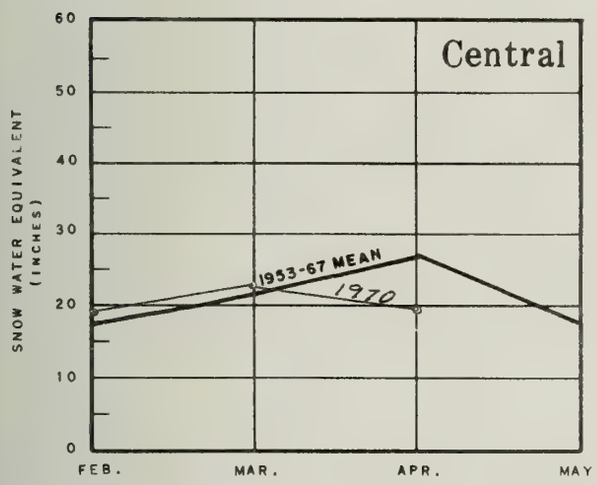
WASHINGTON SNOW COVER

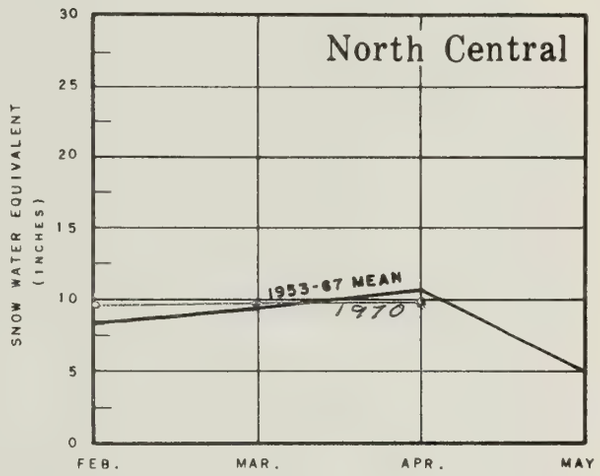
1970

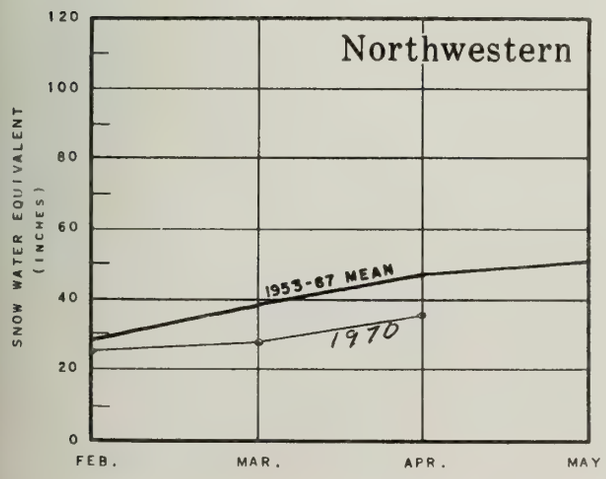
DRAINAGE AREAS

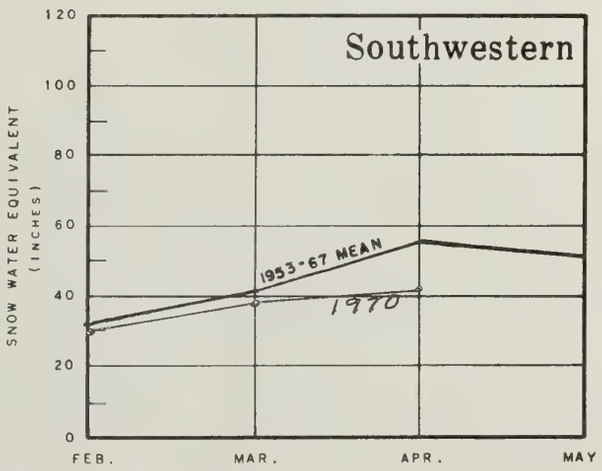












Selected Snow Survey Courses by Soil Conservation Service

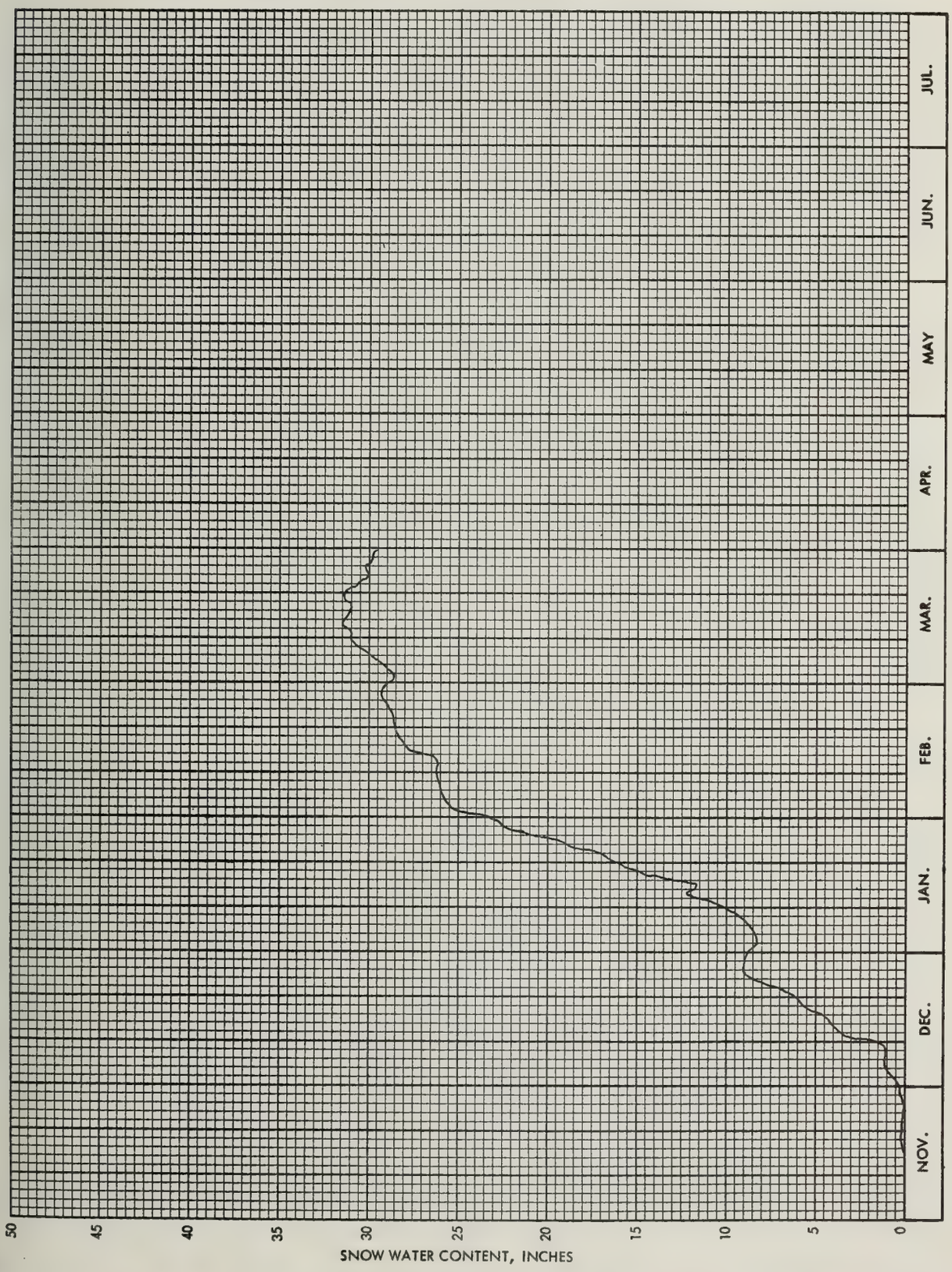
1969 - 1970

SNOW PILLOW DATA

Berne-Mill Creek

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River

Lat. 47° 46' Long. 121° 01' Elev. 3170'



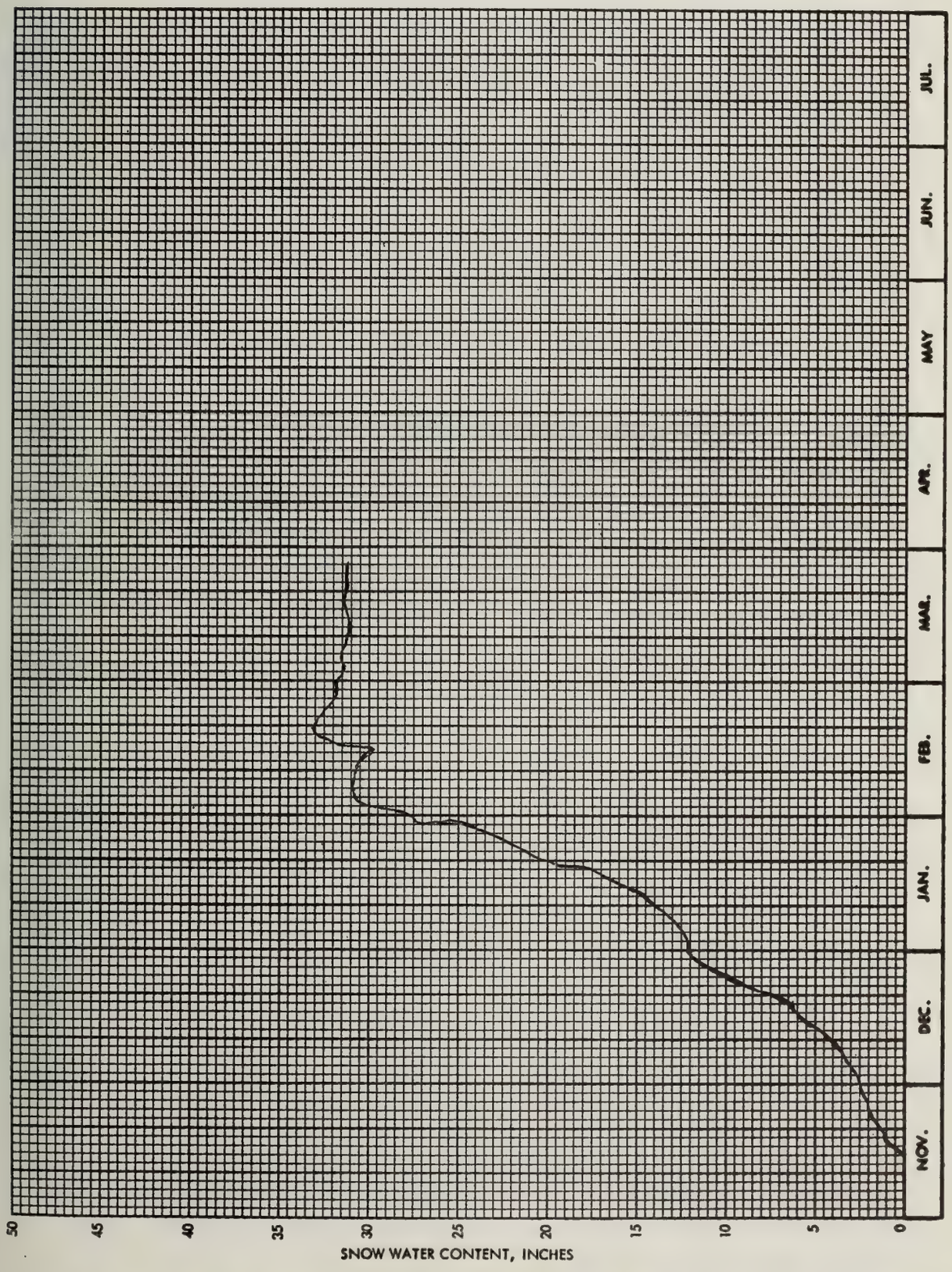
1969 - 1970

SNOW PILLOW DATA

Snowshoe Butte -FS

Sec. 28 T. 21N R. 9E No. 21B43SP Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 5000'



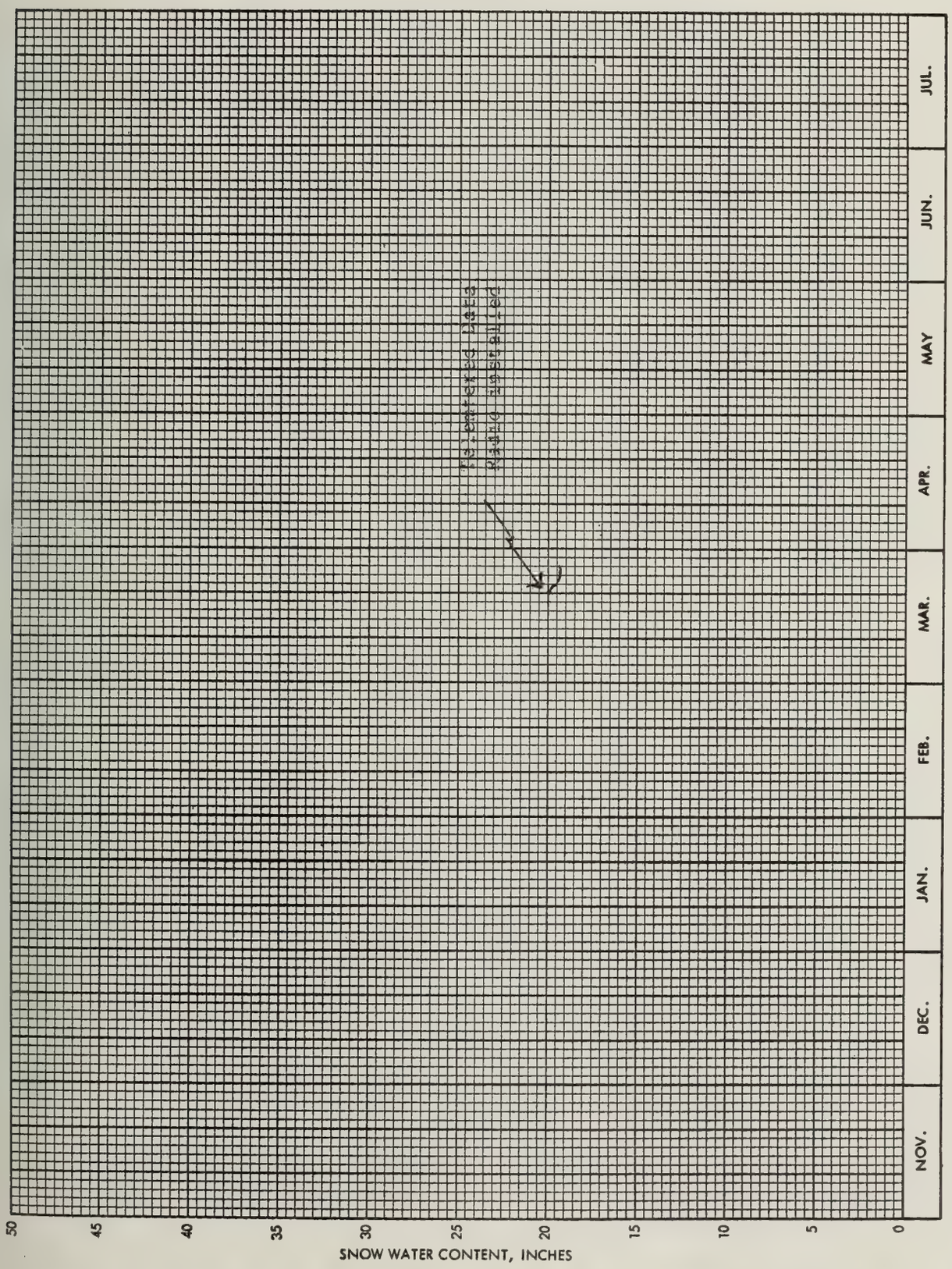
1969 - 1970

SNOW PILLOW DATA

TROUGH #2

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Colockum Creek

Lat. 47° 14' Long. 120° 19' Elev. 5310'



WSFB-X4

APPENDIX 1
SNOW DATA MARCH 1 to APRIL 1, 1970

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	4/1	111	42.1	49.5	50.5
Baree Midway	15B16	4600	4/1	94	35.5	41.2	--
Benton Meadow	16A2	2344	3/27	16	6.2	6.7	3.2
Benton Spring	16A3	4900	3/27	57	20.8	23.0	20.8
Boyer Mountain	17A2	5250	3/30	69	25.6	31.3	27.9
Brush Creek	14A4	5000	3/26	41	13.0	13.9	13.1
Bunchgrass Meadow	17A1	5000	3/30	71	25.7	36.3	31.8
#Chewelah	17A4	4925	3/28	53	16.8	22.0	19.2*
Heart Lake Trail	14C10	4800	3/27	57	20.8	25.0	23.0
Hoodo Basin	15C10	6000	3/27	122	47.8	56.1	--
Hoodo Creek	15C1	6200	3/27	117	44.1	52.4	50.6
Lookout	15B2	5250	3/31	98	34.6	44.7	38.4
Mosquito Ridge	16A4A	5100	4/3	95	37.8	44.8	40.2*
Nelson	Canada	3050	3/25	37	13.2	20.3	17.4
Schweitzer Bowl	16A6	4500	3/31	76	29.3	36.3	--
Schweitzer Ridge	16A5	6100	3/31	101	40.2	61.2	--
Smith Creek	16A1	4800	4/1	86	31.9	51.8	50.1
Winchester Creek	17A3	2970	3/30	34	11.9	16.0	11.3*
Baree Trail	15B15	3800	4/1	32	13.2	17.8	7.8
KETTLE RIVER							
Barnes Creek	Canada	5500	3/26	50	14.4	19.7	21.7**
Big White Mountain	Canada	5500	3/31	51	15.5	21.2	20.1**
Boulder Road	18A2	1450	3/26	0	0.0	9.0	1.8*
Butte Creek	18A3	4070	3/26	31	9.4	14.4	9.9*
Cabin Creek	18A8	3170	3/26	25	8.7	14.3	8.9*
Carmi	Canada	4100	3/31	18	5.8	8.1	5.9**
Farron	Canada	4000	4/1	33	11.4	19.6	14.4
Goat Creek	18A4	3595	3/26	13	5.4	10.8	6.5*
Lower Trapping Cr.	Canada	3050	3/31	7	2.4	4.2	2.8**
#Monashee Pass	Canada	4500	3/26	34	8.9	12.9	14.4
Old Glory Mountain	Canada	7000	3/27	60	21.1	32.1	27.3
Snow Caps Creek	18A5	2150	3/26	0	0.0	7.8	1.9*
Snow Caps Trail	18A6	2720	3/26	12	4.6	10.5	5.7*
Summit G. S.	18A7	4600	3/26	28	7.9	13.3	9.6*
Upper Trapping Cr.	Canada	5500	3/31	28	7.4	10.1	9.0**
COLVILLE RIVER							
Baird	17A6	3215	3/28	19	7.5	6.6	6.4*
Carlson	18A9	2885	3/28	8	2.4	5.6	2.7*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-67 period

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
COLVILLE RIVER (Cont.)							
Chewelah	17A4	4925	3/28	53	16.8	22.0	19.2*
Stranger Mountain	17A5	4990	3/28	45	14.2	20.2	14.3*
Togo	18A10	3370	3/28	35	10.3	17.7	11.2*
SPOKANE RIVER							
Above Burke	15B8	4100	4/3	75	22.8	30.8	25.0*
Above Roland	15B7	4350	4/4	96	36.5	39.0	34.8*
Below Roland	15B6	3770	4/4	49	19.9	22.3	17.0*
Copper Ridge	16B2	4800	3/30	74	27.5	32.9	31.1
Forty-nine Meadows	15B3	5000	Late Report			35.7	36.1
Fourth of July Summit	16B3	3100	3/13	29	10.0	17.6	--
			3/31	22	8.0	15.8	11.2*
Granite Peak	15B13A	6000	Late Report			49.0	51.2*
Kellogg Peak	16B5A	5560	4/3	83	29.8	39.6	33.5*
#Lookout	15B2	5250	3/31	98	34.6	44.7	38.4
Lost Lake	15B14A	6000	Late Report			62.1	66.2*
Lower Sands Creek	16B1	3400	3/30	53	20.6	23.7	21.0
Medicine Ridge	15B4A	6150	Late Report			47.8	--
#Mosquito Ridge	16A4A	5110	4/3	95	37.8	44.8	40.2*
Outlaw Creek	15B12A	3750	Late Report			23.5	17.8*
Roland Summit	15B5A	5200	Not Measured			43.9	41.2*
Sherwin	16C1	3200	3/28	32	11.4	14.8	16.6*
Sunset	15B9A	5600	4/3	100	32.6	42.9	35.6*
SANPOIL RIVER							
Sherman Creek Pass	18A1	5350	3/27	41	13.3	22.2	15.2
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	3/31	16	4.7	7.2	6.1
Blackwall Mountain	Canada	6250	3/26	69	27.3	32.0	33.9**
Bouleau Creek	Canada	5000	4/1	32	10.3	12.7	11.9**
Brenda Mine	Canada	4800	3/26	36	9.6	10.9	--
Brookmere	Canada	3200	3/29	29	8.0	6.5	9.3
Carrs Landing (Lower)	Canada	2250	3/28	0	0.0	0.0	--
Carrs Landing (Upper)	Canada	3200	3/28	14	4.1	5.2	--
Clark +	19A8a	7000	Not Measured			23.0	23.1*
Copper Mountain	Canada	4300	3/30	17	5.4	4.8	5.4
Enderby	Canada	6250	3/27	97	34.6	43.9	37.7**
#Freezeout Meadows	20A2	5000	3/30	66	23.4	26.4	32.6

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
Hamilton Hill	Canada	4900	3/27	40	13.1	14.5	14.6**
#Harts Pass	20A5A	6500	3/31	94	36.6	45.6	46.6
#Horseshoe Basin +	19A5a	7000	2/26	43	14.6	20.5	11.6*
			3/30	47	16.4	25.2	13.5*
Isintok Lake	Canada	5510	3/28	21	5.5	5.9	7.0**
Lost Horse Mountain	Canada	6300	Late Report			7.7	7.5**
#Loup Loup	19A7	4650	3/26	26	9.5	14.7	8.7*
McCulloch	Canada	4200	3/29	22	5.8	8.2	6.5
Missezula Mountain	Canada	5100	3/26	26	7.2	7.6	7.8**
Mission Creek	Canada	6000	3/26	50	14.0	22.5	20.1
Monashee Pass	Canada	4500	3/26	34	8.9	12.9	14.4
Mount Kobau	Canada	5950	3/31	37	11.7	14.7	13.2**
Muckamuck +	19A9a	6390	Not Measured			24.6	17.5*
Mutton Creek No. 1	19A1	5700	3/27	34	13.0	17.9	14.1
Mutton Creek No. 2	19A4	6000	3/27	37	13.0	17.7	15.1
New Copper Mountain	Canada	4300	3/27	17	6.1	4.1	4.2**
New Penticton Res #2	Canada	6200	3/31	30	6.8	8.4	--
Nickel Plate Mtn	Canada	6200	4/1	30	7.1	7.5	7.8
Paysayten +	20A28a	4300	2/26	48	16.3	18.7	14.2*
			3/30	42	14.7	16.4	14.9*
Postill Lake	Canada	4500	3/31	28	7.7	8.6	8.7**
#Quartette Lake	Canada	4000	3/29	39	12.8	14.4	14.2
Rusty Creek	19A3	4000	3/26	21	7.4	10.4	7.0
Salmon Meadows	19A2	4500	3/27	30	10.0	10.1	10.6
Silver Star Mountain	Canada	6050	4/1	66	22.6	35.5	26.5**
Starvation Mountain +	19A10a	6750	Not Measured			27.1	22.7*
Summerland Reservoir	Canada	4200	3/29	27	7.5	8.4	8.7
Trout Creek	Canada	4700	3/30	24	6.4	5.6	6.9
White Rocks Mtn	Canada	6000	3/30	54	18.5	21.3	20.3**
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	2/26	79	26.9	37.4	25.8*
			3/30	88	30.8	40.7	34.4*
Dollar Watch +	20A29a	7000	2/26	78	26.5	28.1	23.7
			3/30	75	26.2	30.2	27.6*
Harts Pass	20A5A	6500	3/31	94	36.6	45.6	46.6
Horseshoe Basin +	19A5a	7000	2/26	43	14.6	20.5	11.6*
			3/30	47	16.4	25.2	13.5*
Loup Loup	19A7	4650	3/26	26	9.5	14.7	8.7*
#Mutton Creek No. 1	19A1	5700	3/27	34	13.0	17.9	14.1
#Mutton Creek No. 2	19A4	6000	3/27	37	13.0	17.7	15.1
#Salmon Meadows	19A2	4500	3/27	30	10.0	10.1	10.6
#Rusty Creek	19A3	4000	3/26	21	7.4	10.4	7.0

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average
** Average for years of record

++ 1953-67 period

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
METHOW RIVER (Cont.)							
#War Creek Pass +	20A31a	6500	2/26	76	25.8	42.5	--
			3/30	75	26.2	48.7	--
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	2/26	75	25.5	46.7	34.9*
Little Meadows +	20A24a	5275	2/26	97	33.0	53.2	37.5*
			Not Measured			--	45.9*
Lyman Lake	20A23A	5900	2/26	107	36.4	62.3	50.3*
			3/27	113	46.6	70.8	58.5
Park Creek Flat +	20A13a	2220	2/26	76	25.8	--	31.0*
			Not Measured			--	34.4*
Park Creek Ridge	20A12A	4600	2/26	94	32.0	52.1	41.7*
			3/27	94	33.7	52.2	46.5
Petersons +	20A16a	3730	2/26	74	25.2	34.2	32.5*
Rainy Pass	20A9	4780	3/31	81	31.0	42.6	41.2
Safety Harbor	20A30A	6300	2/26	48	16.3	35.3	--
			3/30	59	20.9	35.0	--
War Creek Pass +	20A31a	6500	2/26	76	25.8	42.5	--
			3/30	75	26.2	48.7	--
ENTIAT RIVER							
Brief	20B19	1600	3/28	12	4.6	9.7	2.5*
Entiat Meadows +	20A33a	4800	3/31	99	36.9	47.8	--
Entiat River Trail +	20A34a	3150	3/31	44	17.0	24.5	--
Fox Camp +	20A36a	6510	3/31	114	42.5	64.3	--
Pope Ridge	20B20	4300	3/12	53	17.4	25.8	--
			3/26	42	16.3	24.6	--
Pope Ridge S. P.	20B24SP	4300	Not Measured			24.0	--
Pugh Ridge +	20A32a	6400	3/31	87	32.5	42.7	--
Shady Pass	20A37	5000	3/13	61	20.0	--	--
			3/27	56	21.0	--	--
Snow Brushy +	20A35a	3850	3/31	73	27.2	47.0	--
Tommy Creek +	20B21a	5300	3/31	56	20.9	29.6	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	3/15	Not Measured		38.3	--
			3/31	68	28.8	36.3	27.5*
Berne-Mill Creek New	21B41SP	3240	3/15	Not Measured			
			3/31	64	29.8	37.4	--
Blewett Pass No. 2	20B2	4270	4/1	43	19.0	21.7	16.1

\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
WENATCHEE RIVER (Cont.)							
Chiwaukum G. S.	20B16	1810	3/15	Not Measured		17.6	--
			3/31	28	10.4	14.4	9.6*
#Fish Lake	21B4	3371	3/27	70	31.0	43.0	35.4
Lake Wenatchee	20B5	1970	3/15	Not Measured		19.8	--
			3/31	24	9.9	17.4	11.1*
Leavenworth R. S.	20B17	1127	3/26	2	0.3	2.3	--
#Lyman Lake	20A23A	5900	3/27	113	46.6	70.8	58.5
Merritt	20B18	2140	3/15	Not Measured		25.6	--
			3/31	35	14.0	24.2	14.2*
Stevens Pass	21B1	4070	3/13	125	48.3	58.3	49.7
			3/31	108	37.0	60.9	54.1
Stevens Pass Sand Shed	21B45	3700	3/13	92	33.7	43.3	--
			3/31	79	30.7	44.4	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	3/31	28	11.4	14.1	7.7*
Scout-A-Vista	20B4	3400	3/31	24	10.2	11.7	6.4*
STEMILT CREEK							
Jump-Off	20B8	4450	3/30	29	12.0	12.8	7.3*
Stemilt Slide	20B6	5000	3/31	34	14.9	17.7	13.3*
Upper Wheeler	20B7	4400	3/31	26	12.4	15.4	8.3*
COLOCKUM CREEK							
Colockum Creek	20B22	5300	3/30	46	18.7	19.0	--
Colockum Creek No. 2	20B23	4300	3/30	33	13.8	12.2	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	3/27	22	8.2	13.0	4.9
Big Boulder Creek	21B9	3200	3/27	49	21.4	25.3	18.7
#Blewett Pass No. 2	20B2	4270	4/1	43	19.0	21.7	16.1
Bumping Lake	21C8	3450	3/16	58	25.8	20.4	16.9*
			3/31	50	22.2	18.2	16.8
Bumping Lake New	21C36	3400	3/16	65	28.5	23.6	--
			3/31	57	27.4	22.1	--
#Cayuse Pass	21C6	5300	3/27	170	73.1	91.2	91.2
Colockum Pass	20B9	5370	3/30	52	19.7	17.8	18.6*
Cooke Creek	20B10	4123	3/30	19	7.6	0.0	5.5*
#Corral Pass	21C13	6000	3/27	91	35.2	48.5	41.7*

Not located directly on this drainage
* Adjusted 1953-67 average

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APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
Fish Lake	21B4	3371	3/27	70	31.0	43.0	35.4
Green Lake	21C10	6000	3/27	92	38.2	37.7	33.2*
Grouse Camp	20B11	5385	3/31	51	18.9	21.2	18.2*
High Creek	20B12	2930	3/31	0	0.0	0.0	.9*
Joe Lake	21B46a	4624	Not Measured			84.2	--
Lake Cle Elum	21B14M	2200	3/15	24	10.8	16.4	--
			3/30	2	1.2	11.6	5.7
Lemah Creek	21B47a	3327	3/26	93	40.9	49.7	--
Manashtash	20C1	3935	3/30	12	5.2	4.6	--
Morse Lake	21C17	5400	3/30	138	47.3	67.8	62.0*
Nanum	21B39	2340	3/31	32	12.4	11.4	8.0*
#Olallie Meadows	21B2	3625	3/26	84	39.1	52.2	51.3
#Satus Pass	20D1	4030	4/1	24	9.9	18.0	--
#Stampede Pass	21B10	3000	3/16	97	34.0	57.8	45.2
			4/1	96	34.6	51.2	48.8
Trail Creek	20B14	3360	3/30	0	0.0	0.0	
Tunnel Avenue	21B8	2450	3/16	54	22.0	31.0	25.2*
			3/31	45	19.3	32.2	25.9
Walters Flat	20B15	3360	3/31	15	6.4	6.6	4.9*
White Pass (E. Side)	21C28	4500	3/13	67	25.4	30.9	24.4*
			4/1	61	25.1	30.4	26.6*
White Pass (L. Lake)	21C27	4500	3/20	77	32.4	38.0	31.4*
			3/31	72	31.5	38.8	32.6*
Waptus Lake	21B49a	3024	3/26	93	40.9	New Aerial Marker	
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	3/27	22	8.2	13.0	4.9*
#Green Lake	21C10	6000	3/27	92	38.2	37.7	33.2
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	3/30	74	26.9	31.6	--
MILL CREEK							
Homestead	17C1	4030	3/27	8	3.1	17.6	7.9*
Martin Springs	17C2	4400	3/27	32	13.2	23.2	14.5*
Tollgate	18D3M	5070	3/26	70	29.7	32.1	25.9

\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-67 period

WSFB-X4

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
KLICKITAT RIVER							
Satus Pass	20D1	4030	4/1	24	9.9	18.0	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	3/27	91	38.5	55.6	49.7
#Surprise Lakes	21C13A	4250	3/27	84	41.9	60.7	54.8
WIND RIVER							
#Old Man Pass	21D19	3100	3/27	15	6.2	35.2	20.7
LEWIS RIVER							
Blue Lake +	21C22a	4800	3/27	164	78.7	89.8	84.2
Bob's Trail	21C21	2200	3/27	0	0.0	26.6	13.8*
Calamity Ridge +	22D1a	2500	3/27	0	0.0	24.4	--
Council Pass +	21C18a	4200	3/27	76	36.5	44.9	42.6*
#Cultus Creek	21C12	4000	3/27	91	38.5	55.6	49.7
Divide Meadow +	21C29a	5600	3/27	116	52.2	56.7	60.0*
Grand Meadow	21C25	3500	3/27	40	18.1	32.6	29.0*
Lone Pine Shelter	21C26	3800	3/28	69	26.6	47.4	43.2*
Marble Mountain +	22C5a	3200	3/27	14	7.7	56.3	--
#Mosquito Meadows	21C19	4100	3/28	72	29.2	47.4	47.4
New Muddy River	22C6	1400	3/27	0	0.0	23.3	--
Old Man Pass	21D19	3100	3/27	15	6.2	35.2	20.7*
Plains of Abraham +	22C1a	4400	3/27	180 1/	82.8	87.1	70.2*
Smith Creek Road	22C4	2100	3/27	6	2.6	32.4	17.2*
Spencer Meadow +	21C20a	3400	3/27	6	2.7	36.8	25.6*
Surprise Lakes	21C13A	4250	3/27	84	41.9	60.7	54.8
Table Mountain +	21C24a	4200	3/27	98	43.1	51.0	49.2*
Timbered Peak +	21D18a	3000	3/27	0	0.0	36.7	23.7*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	3/27	170	73.1	91.2	91.2
Mosquito Meadows	21C19	4100	3/28	72	29.2	47.4	47.4*
Ohanapecosh	21C32	2200	3/31	6	2.4	18.6	16.4*
Packwood Lake	21C31	2870	3/27	3	1.2	19.4	13.5*
Pigtail Peak	21C33	5900	3/13	125	50.3	81.0	--
			3/31	124	51.8	68.9	72.9*
#Plains of Abraham +	22C1a	4400	3/27	180 1/	82.8	87.1	70.2
Potato Hill	21C14	4500	3/28	69	29.3	41.0	33.0*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average
1/ Questionable snow depth - avalanche influenced

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ~~or~~
COWLITZ RIVER (Cont.)							
#White Pass (E. Side)	21C28	4500	3/13	67	25.4	30.9	24.4*
			4/1	61	25.1	30.4	26.6*
#White Pass (L. Lake)	21C27	4500	3/20	77	32.4	38.0	31.4*
			3/31	72	31.5	38.8	32.6*
Willame Creek	21C30	3250	3/28	35	14.4	32.6	35.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	3/30	80	36.0	49.5	50.1
Longmire	21C3	2760	3/30	0	0.0	13.7	10.6
New Paradise Park	21C35	5500	3/30	147	66.2	64.6	--
Stem Glade	21C1	5050	3/30	141	61.1	71.3	74.4
WHITE RIVER							
#Cayuse Pass	21C6	5300	3/27	170	73.1	91.2	91.2
Corral Pass	21C13	6000	3/27	91	35.2	48.5	41.7*
#Morse Lake	21C17	5400	3/30	138	47.3	67.8	62.0*
GREEN RIVER							
Airstrip	21B24	1800	3/27	0	0.0	4.9	--
Charley Creek	21B25	1200	3/27	0	0.0	0.0	--
Cougar Mountain SP	21B42SP	3200	Not Measured			28.0	--
Grass Mtn. No. 2	21B27	2900	3/27	37	16.1	33.4	26.1*
Grass Mtn. No. 3	21B28	2100	3/27	0	0.0	11.3	--
Lester Creek	21B29	3100	3/27	48	19.5	35.0	28.7*
Lynn Lake	21B50	4000	3/27	25	10.6	--	--
Sawmill Ridge	21B29	4700	3/27	69	28.6	43.3	46.0*
Snowshoe Butte SP	21B43SP	5000	3/26	112	45.0	67.3	--
Stampede Pass	21B10	3000	3/16	97	34.0	57.8	45.2
			4/1	96	34.6	51.2	48.8
Twin Camp	21B30	4100	3/27	56	23.5	30.6	31.0*
CEDAR RIVER							
City Cabin	21B3	2390	3/27	17	8.5	29.6	18.3
Mt. Gardner	21B21	3300	3/27	8	4.0	28.8	19.8*
Mt Lindsay	21B16	2500	3/27	21	8.2	29.2	17.7*
Mt. Washington	21B15	3000	3/27	0	0.0	22.6	8.9*

\# Not located directly on this drainage

* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
CEDAR RIVER (Cont.)							
Rex River	21B17	2400	3/27	0	0.0	18.8	19.8*
S. F. Cedar	21B6	3000	3/27	20	9.3	32.5	24.8
Tinkham Creek	21B20	3400	3/27	50	22.8	40.4	23.2
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	3/30	74	33.8	64.9	--
#Lake Elizabeth	21B19	2900	3/30	85	38.6	66.8	46.9
Olallie Meadows	21B2	3625	3/26	84	39.1	52.2	51.3*
S. F. Tolt	21B18	1900	3/30	0	0.0	6.3	--
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	3/30	85	38.6	66.8	46.9
#Stevens Pass	21B1	4070	3/13	125	48.3	58.3	49.7
			3/31	108	37.0	60.9	54.1
#Stevens Pass Sand Shed	21B45	3700	3/13	92	33.7	43.3	--
			3/31	79	30.7	44.4	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	3/31	7	3.1	22.1	13.6
Beaver Pass	21A1	3680	3/30	65	26.6	41.3	35.6
Devils Park	20A4	5900	3/31	88	34.4	43.8	46.0
Freezeout Cr. Trail	20A1	3500	3/30	31	10.7	14.2	13.4
Freezeout Meadows	20A2	5000	3/30	66	23.4	26.4	32.6
#Harts Pass	20A5A	6500	3/31	94	36.6	45.6	46.6
Klesilkwa	Canada	3700	Late Report			15.3	13.6
Lake Hozomeen	21A2	2600	3/30	18	6.5	12.5	10.4
#Lyman Lake +	20A23A	5900	3/27	113	46.6	70.8	58.5
Meadow Cabins	20A8	1900	3/31	1	0.5	9.8	7.5
New Tashme	Canada	2500	4/2	9	3.6	12.1	9.8
Quartette Lake	Canada	4000	3/29	39	12.8	14.4	14.2
#Rainy Pass	20A9	4780	3/31	81	31.0	42.6	41.2
Thunder Basin	20A7	4200	3/31	51	19.0	25.6	25.8
BAKER RIVER							
Baker Pass +	21A11A	3800	3/3	126	55.4	--	--
			3/16	143	62.9	--	--
			4/2	148	62.9	--	--
Dock Butte +	21A11A	3800	3/3	103	45.3	69.3	65.3*
			3/16	96	42.2	73.1	--
			4/2	112	47.0	74.8	81.0

Not located directly on this drainage
* Adjusted 1953-67 average
+ Snow water equivalent estimated from aerial stadia observations

SFB-X4

APPENDIX 10

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
BAKER RIVER (Cont.)							
Easy Pass +	21A7A	5200	3/3	110	48.4	67.2	82.1*
			3/16	132	58.1	66.4	--
			4/2	164	69.3	86.3	96.7*
Jasper Pass +	21A6A	5400	3/3	140	61.6	87.4	87.3*
			3/16	168	73.9	89.0	--
			4/2	156	63.6	91.8	103.6*
Komo Kulshan	21A17	800	4/2	0	0.0	15.8	--
Marten Lake	21A9A	3600	3/3	113	49.7	79.0	73.3*
			3/16	118	51.9	72.7	--
			4/2	131	55.8	78.0	88.2*
Mount Blum +	21A18a	5800	3/3	100	44.0	53.3	--
			3/16	117	51.5	52.1	--
			4/2	120	51.0	--	--
#Panorama New	21A26	4300	3/13	126	55.3	68.0	--
			3/28	123	55.8	75.0	--
Rocky Creek +	21A12A	2100	3/3	10	4.4	39.0	23.3*
			3/16	12	5.3	40.3	32.4*
			4/2	24	10.3	41.1	30.5*
Schreibers Meadow +	21A10A	3400	3/3	92	40.5	65.5	58.1*
			3/16	110	48.4	65.5	63.8*
			4/2	98	44.8	69.4	73.3*
S. F. Thunder Creek +	21A14A	2200	3/3	0	0.0	20.2	4.5*
			3/16	0	0.0	18.5	--
			4/2	0	0.0	10.9	5.3*
Sulphur Creek	21A13	1600	4/2	0	0.0	23.4	13.7*
Three Mile Creek	21A8A	4500	4/2	0	0.0	5.3	--
Watson Lakes +	21A8A	4500	3/3	94	41.4	65.9	61.3*
			3/16	90	39.6	64.7	69.0*
			4/2	113	46.0	73.2	78.2*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	3/31	100	45.0	61.5	--
Canyon +	21A20a	5100	3/31	112	50.4	68.5	--
Glacier Creek	21A23	3700	3/27	38	16.8	31.0	--
Panorama New	21A26	4300	3/13	126	55.3	68.0	--
			3/28	123	55.8	75.0	--
Twin Lakes +	21A21a	5200	3/31	151	68.0	83.6	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	3/27	45	18.1	28.0	26.4*

Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivlanet estimated from aerial stadia observation

++ 1953-67 period

WSFB-X4

APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
MORSE CREEK							
Cox Valley	23B14	4500	3/29	80	30.6	49.6	--
Deer Park G. S.	23B13	4850	3/27	20	8.6	19.9	--
ELWHA RIVER							
Hurricane	23B3	4500	3/28	41	15.0	32.8	29.3
SKOKOMISH RIVER							
Black & White	23B7	4200	3/27	65	24.8	53.2	47.9
Black & White Lakes	23B6	4700	3/27	108	50.4	70.9	67.3
Four Streams	23B10	3000	3/27	31	12.7	49.9	--
Home Sweet Home	23B5	5200	3/27	138	58.2	82.2	81.9
Sundown Pass	23B8	3900	3/27	106	48.7	83.2	66.5*

* Adjusted 1953-67 average

++ 1953-67 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Water Resources
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.

and

DEPARTMENT of WATER RESOURCES STATE of WASHINGTON

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAY 1, 1970

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P O Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA-SCS-PORTLAND, OREG 1966

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C

Released by

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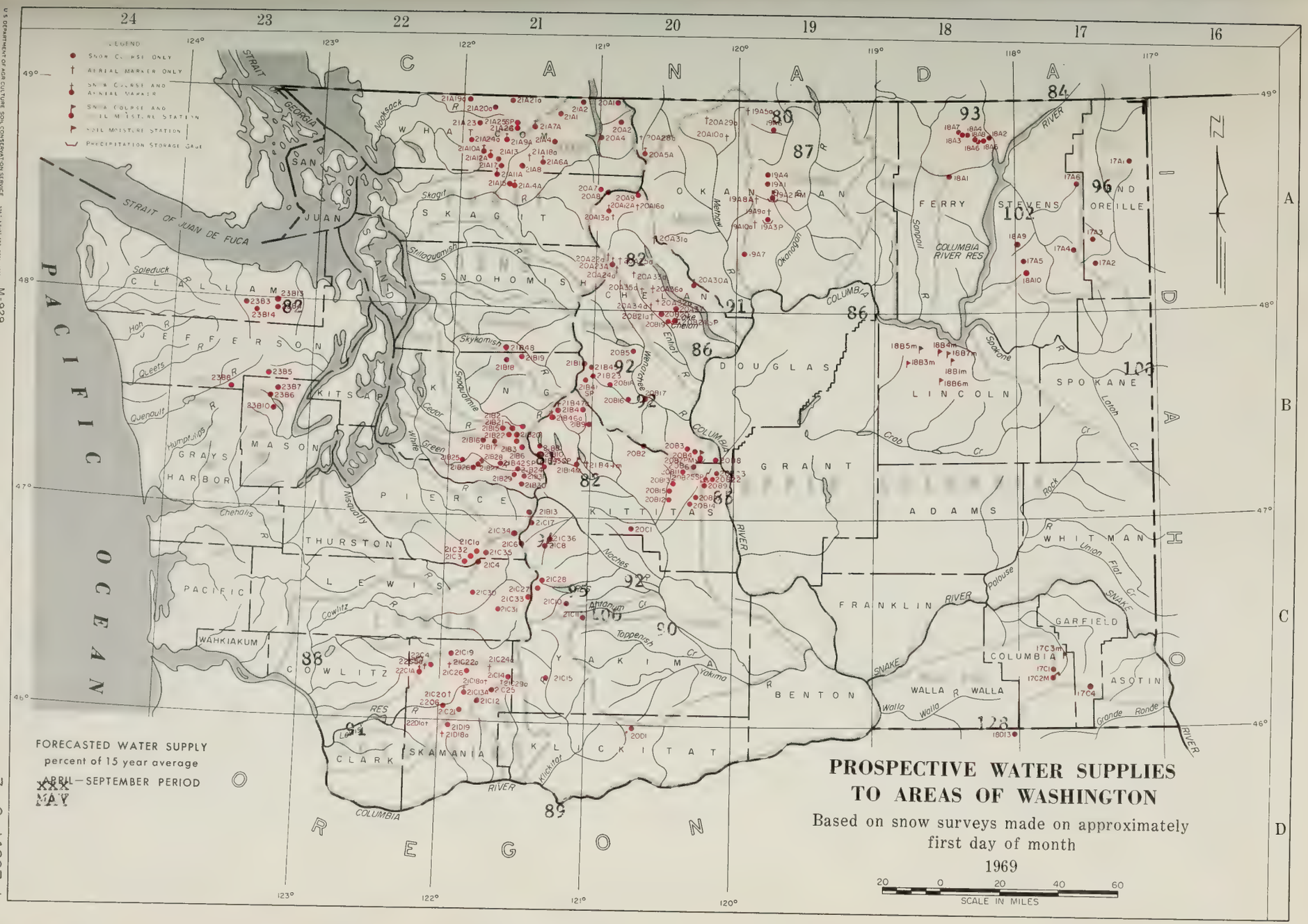

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2070

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4000
Cabin Creek	18A6	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3535
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4000

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A26a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5225
Lyman Lake	20A23a	18	31N	16E	5000
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4610
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	19	30N	18E	6510
Pope Ridge	20B20	22	24N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	24N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	5410
Shady Pass	20A37	20	29N	19E	5200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	13E	3900
Trough #2	20B26SP	10	20N	20E	5310

Clockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clockum Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clockum Creek No. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	14	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B6PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	26	25N	31E	2050
Krause	18B4m	21	28N	33E	2420
Sheffels	18B5m	17	26N	32E	2370
Sherman	18B7m	24	28N	33E	[illegible]
Wheatridge	18B6m	24	26N	32E	2240

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	[illegible]
Big Boulder Creek	21B[illegible]	35	23N	14E	[illegible]
Bumping Lake	21C8	[illegible]	16N	11E	[illegible]
Bumping Lake New	21C3	13	16N	12E	[illegible]
Clockum Pass	20B9	25	20N	20E	[illegible]
Cooke Creek	20B10	1	19N	21E	[illegible]
Domery Flat	21B44m	15	23N	14E	[illegible]
Fish Lake	21B4	34	24N	14E	[illegible]
Green Lake	[illegible]	[illegible]	16N	14E	[illegible]
Grouse Camp	20B11	24	21N	14E	[illegible]
High Creek	[illegible]	[illegible]	20N	14E	[illegible]
Joe Lake	21B4 a	22	23N	12E	4024
Lake Cle Elum	21B42M	15	[illegible]N	14E	[illegible]
Lemah Creek	21B47a	7	23N	13E	3320
Manashtash	20C1	24	20N	14E	[illegible]
Morse Lake	21C[illegible]	[illegible]	16N	11E	[illegible]
Naneum	20B13	4	20N	14E	[illegible]
Trail Creek	20B14	[illegible]	19N	20E	[illegible]
Tunnel Avenue	21B2	13	21N	11E	2450
Walters Flat	21B15	22	20N	14E	3300
White Pass (East Side)	21C[illegible]	[illegible]	18N	11E	4500
White Pass (Leach Lake)	21C[illegible]	1	15N	11E	450

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	42E	5[illegible]

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	3	8N	6E	2000
Oldman Pass	21D19	22	8N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	20	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Chanapecosh	21C32	28	15N	10E	2200
Backwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C[illegible]	29	15N	8E	2060
Paradise Park (New)	21C[illegible]	13	15N	8E	
Stem Made	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C24	4	16N	9E	

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Suquamish Butte	21B43SP	14	23N	11E	5300
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	39N	9E	6200
Marten Lake	21A9A	23	38N	8E	3600
Mount Plum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Mazama Park	21A24a	2	37N	7E	4500
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	24	28N	6W	
Deer Park G. S.	23B13	1	28N	5W	4850

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
May 1, 1970

* *
* There has been a general improvement in the water supply outlook *
* for the remainder of the irrigation and runoff season 1970. This *
* improvement has come about not so much by the increased input in *
* to the watersheds but more from the lack of runoff during the *
* month of April. Although there has been a general increase in the *
* precipitation measured at valley stations as reported by the U.S. *
* Weather Bureau the improvement in the snow cover at the higher *
* elevations is much more marked. Precipitation through March was *
* above normal only in the southeastern portion of the State. So far *
* during the month of April above-normal precipitation occurred in *
* the northeastern portion of the State, the central, as well as on *
* the west slopes of the Cascades. None of the streams flowing from *
* Washington mountains or tributary basins to Washington had normal *
* flows. April flows range from a low of 33% of normal to a high of *
* 88% Reservoirs generally have much less amounts of water in stor- *
* age as of May 1 mainly because of the lack of river flows or in- *
* flows in to the reservoirs. This is primarily true for the pow- *
* er reservoirs since the water is needed on a daily basis now for *
* hydroelectric generation. *
* *

SNOW COVER

The snowpack throughout the State is now generally well above average except for a few of the drainages on the west side and in the Columbia Gorge. The highest, percentagewise, is the Pend Oreille River with a snowpack 160% greater than normal. The lowest is in the Olympic Peninsula, the Elwha River, with a snow cover that is only 64% of average. The Chelan, White Salmon, Lewis, Green, Skagit, and Baker, all have below normal snowpacks as of May 1. Comparison of snow covers at this time is misleading because the low elevations normally are bare as of May 1 and the mid-elevation snow courses vary widely from year to year. Only those snow courses above 3500 feet can be considered an indication of snow cover.

RESERVOIRS

Of the list of reservoirs published in this report only two have water in storage greater than normal as of May 1. Conconully reservoir in the Okanogan River drainage has slightly more water in storage than normal or than has occurred during the last two years. Its companion lake, Salmon, has less water in storage than normal for the combined total of less water in storage than normal for this time of year. Diablo reservoir in the Skagit drainage, a diversion-type impoundment, has slightly more than normal. The other key power reservoirs, such as F. D. Roosevelt Lake and Lake Chelan, have only approximately 25% of normal stored water. The irrigation reservoirs in the Yakima watershed have 77% normal amounts of stored water.

PRECIPITATION

In the Columbia Basin in Canada precipitation was only 75% of normal. This lack of precipitation extended across the Canadian provinces and reduced to 55% of normal in the central or Okanogan-Similkameen area. In the Kettle-Colville-Sanpoil area precipitation was also 75% of normal but to the south, in the Pend Oreille-Spokane drainage precipitation was 17% above normal. In the southeastern portion of the State, where above-normal precipitation has occurred since November, rainfall was only 76% of normal in April. On the west side on the northwest slopes, precipitation was 56% above normal; on the southwest slopes precipitation was 22% above.

SOIL MOISTURE

In the central portion of the State the soil moisture condition is similar to that which has been experienced the last two years. In the Okanogan area it was the same as last year but less than two years ago. In the Yakima drainage comparison cannot be made to last year but the situation is improved over 1968. Similar soil moisture conditions occurred in the Walla Walla drainage area to those experienced in the last two years.

STREAMFLOW

During the month of April streams had less than normal flows ranging from 88% of normal for the Chehalis to 33% for the Similkameen. Streams in the eastern portion of the State generally have lower flows than those along the west side and in the Blue Mountains. Forecasts for the remainder of the runoff season have been increased from those published last month, as much as 20%, but generally, flows will be normal or below but should be adequate for most users. The timing of the runoff will be all-important to both the irrigation users and the hydroelectric power manufacturers.

STREAMFLOW FORECAST - MAY 1970

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1969 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet 1969	1968	1967	15-Yr Average 1953-67
COLUMBIA BASIN							
Columbia River System							
Columbia River at Birchbank 1/	36500	84	May-Sep	44842	45987	52160	43577
	27700	80	May-Jul	35647	35293	41123	34692
	19500	80	May-Jun	27310	23482	28758	24252
Columbia River at Grand Coulee 1/	54000	86	May-Sep	62362	59748	69513	62799
	45200	86	May-Jul	53372	47649	59056	52240
	32200	82	May-Jun	42279	34147	44471	39230
Columbia River bl Rock Island Dam 1/	58580	85	May-Sep	67499	65842	78052	68964
	47280	82	May-Jul	58282	52947	66635	57500
	35380	82	May-Jun	46531	37870	50064	43110
Columbia River at The Dalles, OR 1/	82350	89	May-Sep	87847	81386	101387	92456
	67350	87	May-Jul	75516	64872	86619	77330
	51950	87	May-Jun	61607	47877	66390	59690
Pend Oreille River System							
Pend Oreille River bl Box Canyon	13300	96	May-Sep		11500	15193	13863
	12000	95	May-Jul		9708	14288	12644
	9900	93	May-Jun		8102	12063	10619
Kettle River System							
Kettle River nr. Laurier	1550	93	May-Sep	1717	1696	1753	1667
	1480	94	May-Jul	1667	1565	1720	1571
	1320	95	May-Jun	1524	1405	1580	1393
Colville River at Kettle Falls	100	102	May-Sep		42	86	98
	88	102	May-Jul		33	80	86
	77	101	May-Jun		29	73	76

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - May 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	1969	1968	1967	15-Yr Avg 1953-67
	Seasonal Streamflow in Thousands of Acre-Feet						
Spokane River System *							
Spokane River at Post Falls ID 2/	2100	100	May-Sep		1228	2226	2110
	2000	100	May-Jul		1080	2166	2015
	1870	100	May-Jun		985	2033	1872
Okanogan River System**							
Similkameen River nr. Nighthawk	1140	80	May-Sep	1089	1377	1641	1431
	1070	81	May-Jul	1040	1287	1571	1325
	920	83	May-Jun	940	1086	1360	1103
Okanogan River nr. Tonastket	1400	87	May-Sep		1486	1736	1609
	1280	88	May-Jul		1348	1654	1449
	1060	89	May-Jun		1122	1426	1190
Methow River System**							
Methow River nr. Pateros	880	91	May-Sep		900	1217	969
	825	92	May-Jul		833	1159	895
	700	93	May-Jun		694	995	748
Chelan River System							
Chelan River at Chelan 3/	990	86	May-Sep		1149	1310	1148
	880	88	May-Jul		993	1175	1001
	675	90	May-Jun		722	910	752
Stehekin River at Stehekin	680	82	May-Sep		815	970	827
	585	84	May-Jul		682	834	695
	445	87	May-Jun		482	639	509
Wenatchee River System							
Wenatchee River at Plain	1090	92	May-Sep		1050	1253	1183
	985	93	May-Jul		914	1142	1053
	790	98	May-Jun		698	884	802
Wenatchee River at Peshastin	1480	92	May-Sep		1381	1703	1606
	1360	94	May-Jul		1210	1567	1444
	1090	98	May-Jun		915	1232	1108

* Forecasts made by Morlan W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - May 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	1969	1968	1967	15-Yr. Avg. 1953-67
	Seasonal Streamflow in Thousands of Acre-Feet						
Wenatchee River System (Cont.)							
Stemilt Basin							
nr. Wenatchee	130	--	May-Sep			146*	--
Yakima River System							
Yakima River							
nr. Martin 4/	95	81	May-Sep		80	105	118
	88	82	May-Jul		62	102	107
	74	84	May-Jun		56	91	88
Yakima River							
at Cle Elum 5/	650	82	May-Sep		592	792	790
	595	84	May-Jul		486	726	707
	500	86	May-Jun		403	619	584
Yakima River							
nr. Parker 6/	1175	90	May-Sep			1382	1308
	1175	91	May-Jul			1422	1292
	1105	96	May-Jun			1318	1153
Kachess River							
nr. Easton 7/	84	82	May-Sep		62	91	102
	78	82	May-Jul		52	89	95
	70	86	May-Jun		48	80	81
Cle Elum River							
nr. Roslyn 8/	345	83	May-Sep		321	406	415
	315	84	May-Jul		274	380	375
	265	87	May-Jun		227	322	303
Bumping River							
nr. Nile 9/	125	94	May-Sep		94	138	133
	115	95	May-Jul		82	130	121
	97	100	May-Jun		62	108	97
American River							
nr. Nile	103	92	May-Sep		88	120	112
	95	92	May-Jul		78	112	103
	80	96	May-Jun		67	92	83
Tieton River							
at Tieton Dam 10/	205	95	May-Sep		149	225	216
	175	96	May-Jul		116	195	181
	135	98	May-Jun		93	154	138

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

Streamflow Forecasts - May 1970 (Cont.)

Basin, Stream and Station	Forecast Runoff 1970	% 15-Yr. Avg.	Forecast Period	1969	1968	1967	15-Yr. Avg. 1953-67
			Seasonal Streamflow in Thousands of Acre-Feet				
Yakima River System (Cont.)							
Naches River							
nr. Naches 11/	685	92	May-Sep		512	809	748
	615	92	May-Jul		430	743	668
	525	96	May-Jun		357	628	547
Ahtanum Creeks							
nr. Tampico 12/	40	100	May-Sep		26	51	40
	34	98	May-Jul		22	47	35
	29	98	May-Jun		19	40	30
Lower Columbia River System							
Mill Creek							
nr. Walla Walla	23	128	May-Sep		10	16	18
	19	136	May-Jul		7	13	14
	16	133	May-Jun		5	12	12
Lewis River							
at Ariel 13/	870	91	May-Sep		784	856	956
	725	91	May-Jul		509	743	796
	610	93	May-Jun		429	638	657
Cowlitz River							
at Castle Rock 14/	1860	88	May-Sep		1896	2115	2120
	1570	88	May-Jul		1365	1853	1789
	1280	90	May-Jun		1144	1528	1426
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River							
nr. Sequim	125	82	May-Sep		121	191	153
	102	84	May-Jul		93	156	122
	74	86	May-Jun		65	111	86

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1970, as per cent of the same date in 1969 and 1968 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1970 Snow Water Expressed as per cent of 1969	1968	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	11 - 14	6 - 33	113	130	260*
Kettle	7 - 10	7 - 32	114	157	121*
Spokane	3 - 4	6 - 33	137	199	121*
Okanogan	13 - 15	5 - 35	136	140	118*
Methow	1 - 4	9 - 28	111	76	125*
Chelan	1 - 2	9 - 38	74	78	83*
Entiat	8	3 - 5	88	--	--
Wenatchee	1 - 6	9 - 38	93	180	104*
Yakima	5 - 10	4 - 50	116	209	140*
		LOWER COLUMBIA			
White Salmon	2	26	76	141	90*
Lewis	10 - 14	9 - 26	62	155	73*
Cowlitz	1	7 - 30	101	183	128*
		PUGET SOUND			
White	1	14 - 30	96	133	102*
Green	2	9 - 24	83	166	99*
Snoqualmie	1	2 - 24	96	217	106*
Skykomish	1 - 2	12 - 24	92	180	104*
Skagit	6 - 8	19 - 38	104	127	96*
Baker	6 - 7	12	71	87	67*
		OLYMPIC PENINSULA			
Elwha	1	20	51	86	64*
Dungeness	1	20	73	104	82*

* Records of less than 15 years used on computation of average.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (May) 1970	1969	1968	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	149.5	441.8	127.0	299.9
Columbia	Franklin D. Roosevelt Lake	5232.0	538.5	-1864.1	- 284.2	2444.9
Columbia	Banks Lake	761.8	648.0	581.3	464.3	409.7
Okanogan	Conconully Reservoir	13.0	8.1	6.6	7.4	7.6
Okanogan	Salmon Lake	10.5	7.6	7.6	9.0	8.7
Chelan	Lake Chelan	676.1	74.3	229.1	449.6	210.0
		YAKIMA				
Yakima	Keechelus Lake	157.8	99.3	107.9	141.4	120.6
Kachess	Kachess Lake	239.0	196.2	193.0	215.9	202.4
Cle Elum	Lake Cle Elum	436.9	216.9	323.4	385.3	323.2
Bumping	Bumping Lake	33.7	7.7	7.7	15.7	20.1
Tieton	Rimrock Lake	198.0	119.5	165.6	165.0	154.1
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	541.0	546.5	993.0	695.4
Skagit	Diablo Reservoir	90.6	86.4	87.0	88.3	85.2
Skagit	Gorge Reservoir	9.8	8.0	8.0	8.8	--

1 / Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - MAY

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of May 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	10.4	10.3	9.6
Krause	18B4m	2440	48	13.6	9.2	9.4	8.7
Sheffels	18B5m	2360	48	13.6	8.7	8.3	7.3
Sherman	18B7m	2440	48	13.6	8.9	8.6	8.6
Wheatridge	18B6m	2200	48	13.6	9.6	9.5	8.6
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	3.7	3.7	4.2
Trout Creek	3-M	3600	48	7.3	Destroyed	5.3	6.3
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	5.6	--	4.9
Lake Cle Elum	21B14M	2200	48	12.8	9.2	--	9.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.4	10.9	7.2
Helmers	17C2M	4400	48	12.0	10.5	11.2	11.3
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.3	6.5	10.9

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct 1 1969	1968	1967
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.5	7.1	5.2
Krause	18B4m	2440	48	13.6	5.9	5.2	4.9
Sheffels	18B5m	2360	48	13.6	4.5	4.9	3.7
Sherman	18B7m	2440	48	13.6	4.2	3.9	3.6
Wheatridge	18B6m	2200	48	13.6	5.4	4.6	4.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.7	2.7	1.5
Trout Creek	3-M	3600	48	7.3	3.8*	4.1	4.0
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	Not available	3.1	4.8
Lake Cle Elum	21B14M	2200	48	12.8	Not available	5.2	9.1
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.1	7.4	5.4
Helmers	17C2M	4400	48	12.0	7.1	7.6	6.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.8	5.5	5.6

* Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

DRAINAGE DIVISIONS	FALL Sept-Oct 1969 2/		WINTER Nov. '69 - Mar. '70 2/		SPRING April '70 2/	
	Observed	Departure	Observed	Departure	Observed	Departure
Columbia in Canada	4.73	+0.84	8.94	-3.75	1.03	-0.35
Pend Oreille - Spokane	3.81	-0.07	16.52	-1.73	2.72	+0.39
Northeastern Washington	2.91	+0.66	10.07	-1.02	1.07	-0.36
Southeastern Washington	2.56	-0.09	14.26	+1.85	1.44	-0.44
Central Washington	3.83	-0.61	22.65	-4.48	2.64	+0.43
North Central Washington	2.02	+0.61	5.86	-0.48	0.43	-0.34
Northwest Slope Cascades	12.20	+0.53	38.97	-13.17	9.22	+3.31
Southwest Slope Cascades	9.55	+1.83	36.37	-4.50	5.29	+0.96

Northeastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

Southeastern Washington - Touchet, Tucannon and Palouse drainages.

Central Washington - Yakima, Wenatchee and Chelan drainages.

North Central Washington - Methow and Okanogan drainages.

Northwest Slope Cascades - Puget Sound drainages.

Southwest Slope Cascades - Lower Columbia drainages.

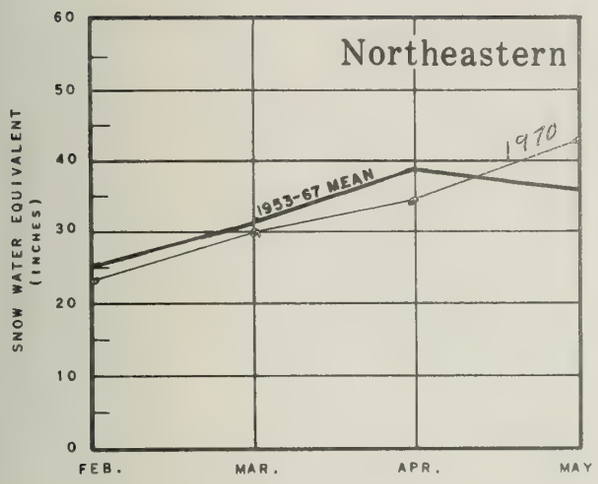
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

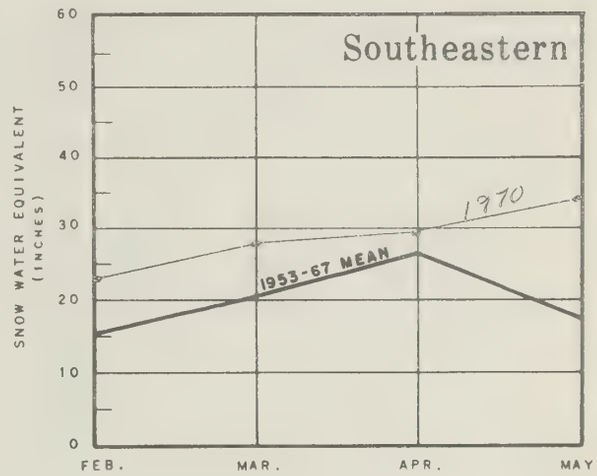
2/ - Departure from 15-year (1953-67) drainage division average.

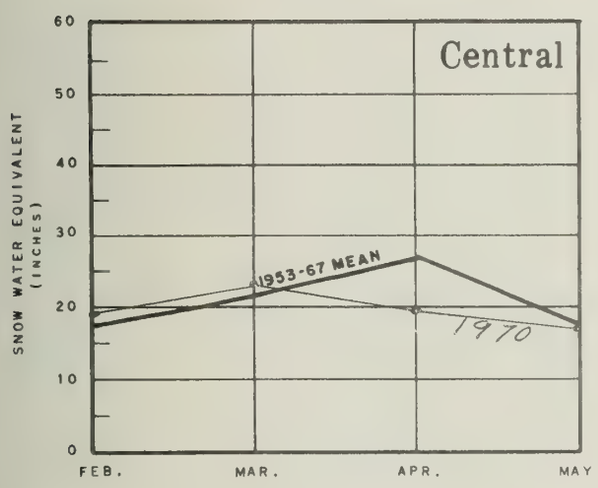
WASHINGTON SNOW COVER

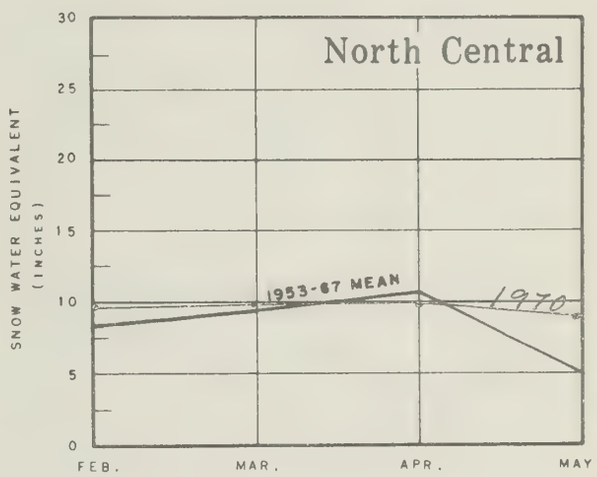
1970

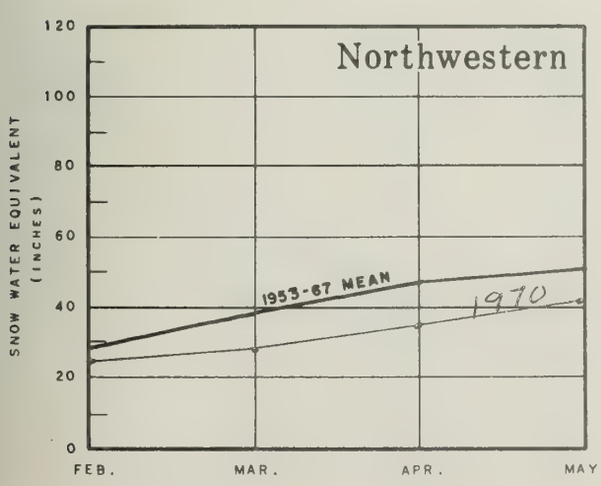
DRAINAGE AREAS

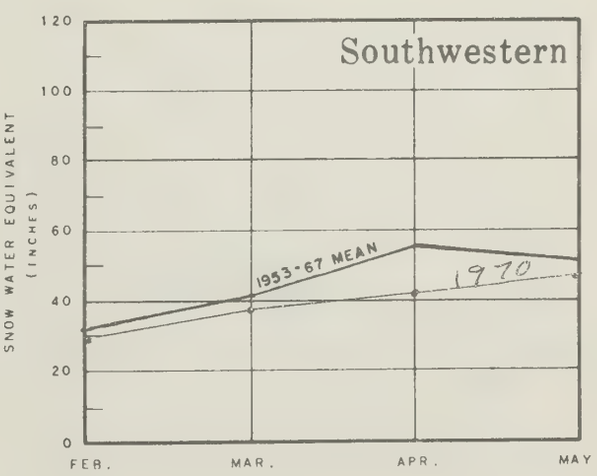










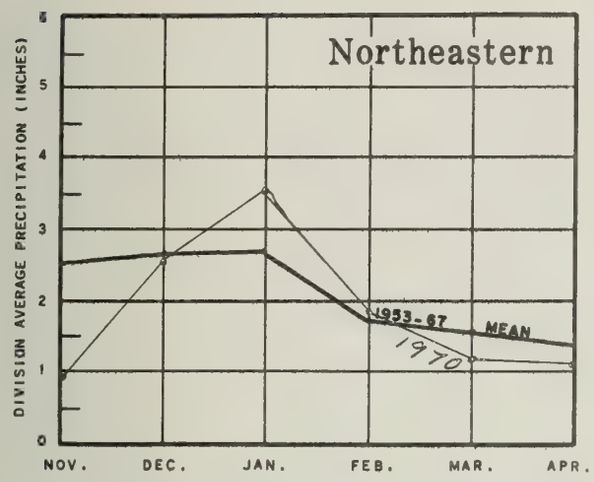


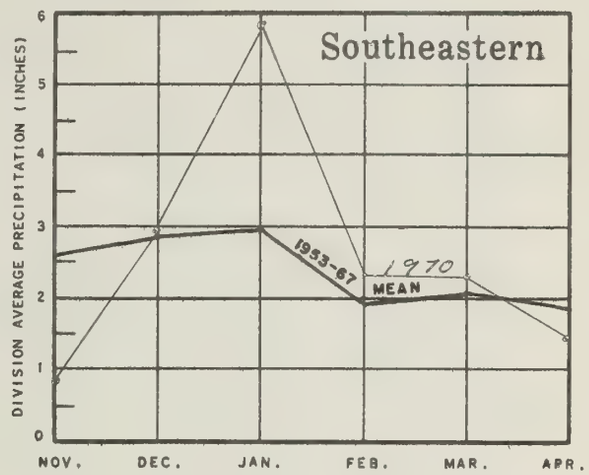
Selected Snow Survey Courses by Soil Conservation Service

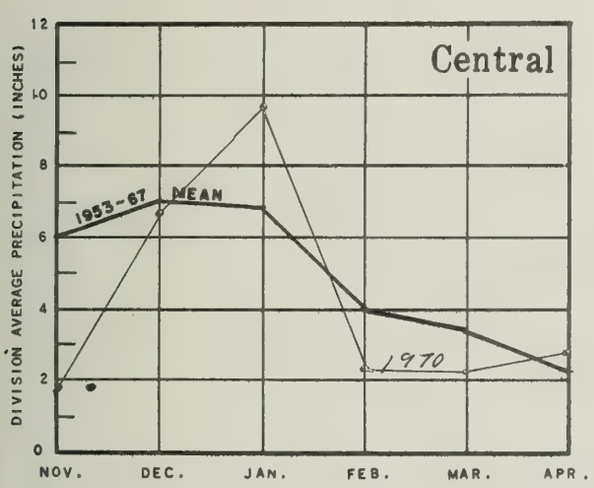
WASHINGTON VALLEY PRECIPITATION

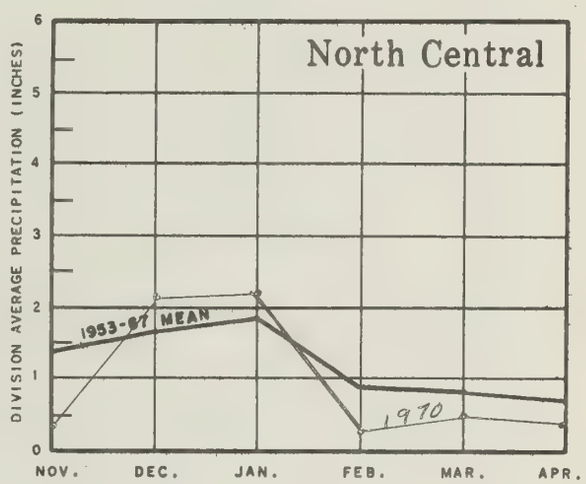
1969-1970

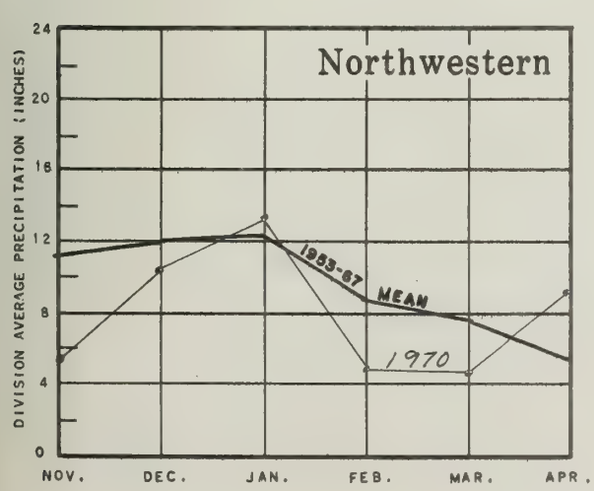
DRAINAGE AREAS

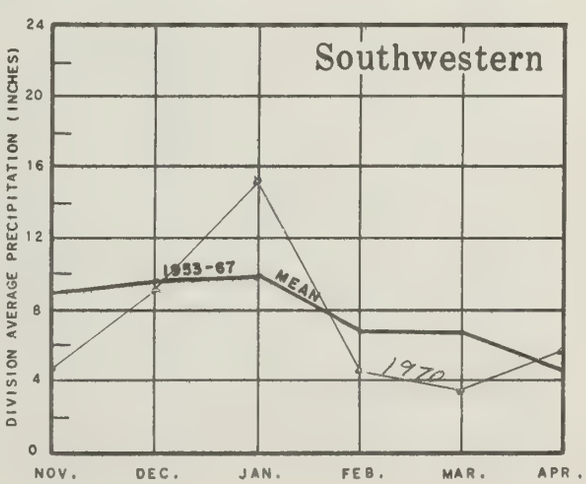












Preliminary Analysis by U. S. Weather Bureau

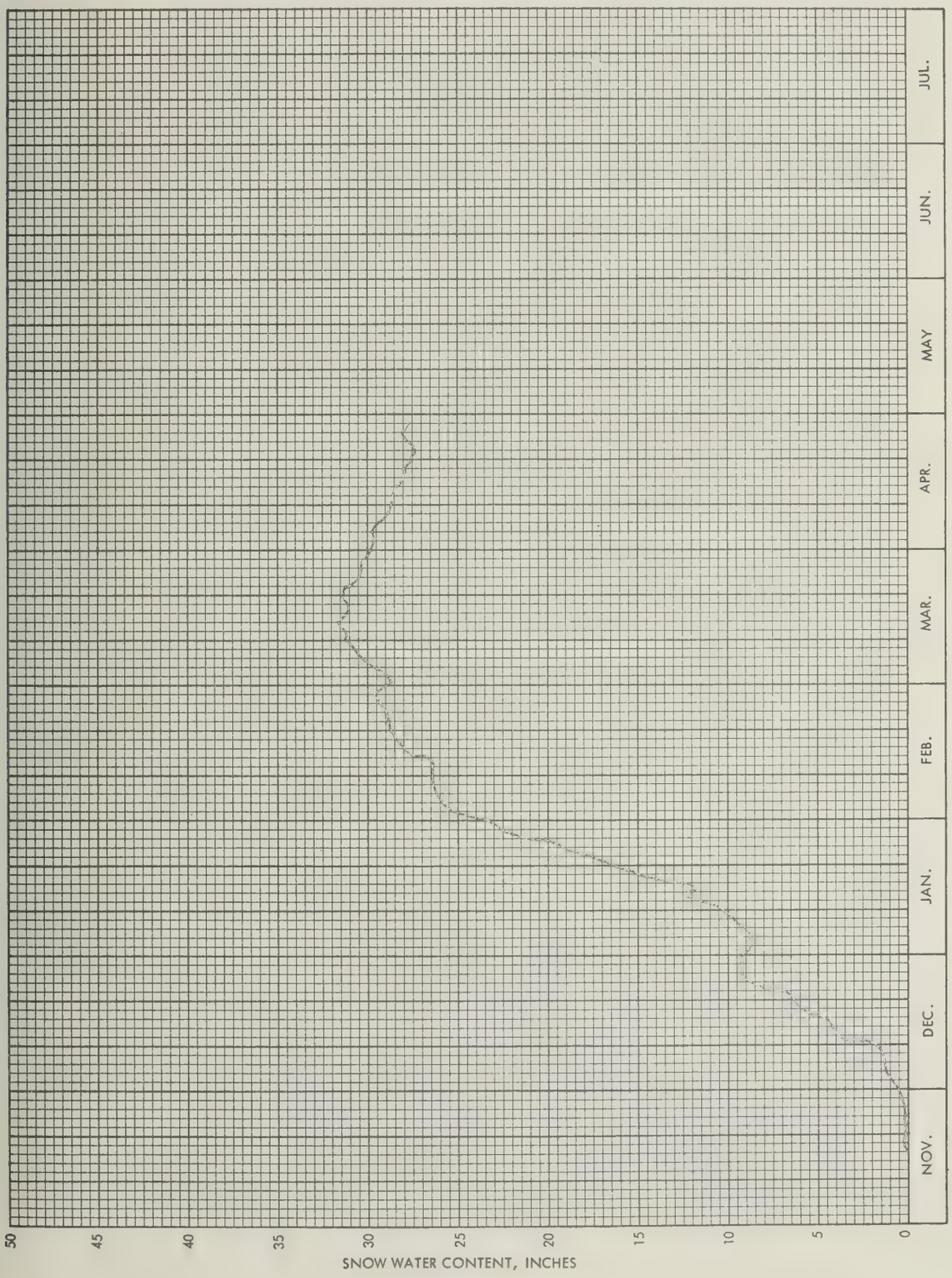
1969 - 70

SNOW PILLOW DATA

Berne Mill Creek

Sec. 13 T. 26N R. 14E No. 21B41S1 Drainage: Wenatchee

Lat. 47° 46" Long. 121° 01" Elev. 3170"



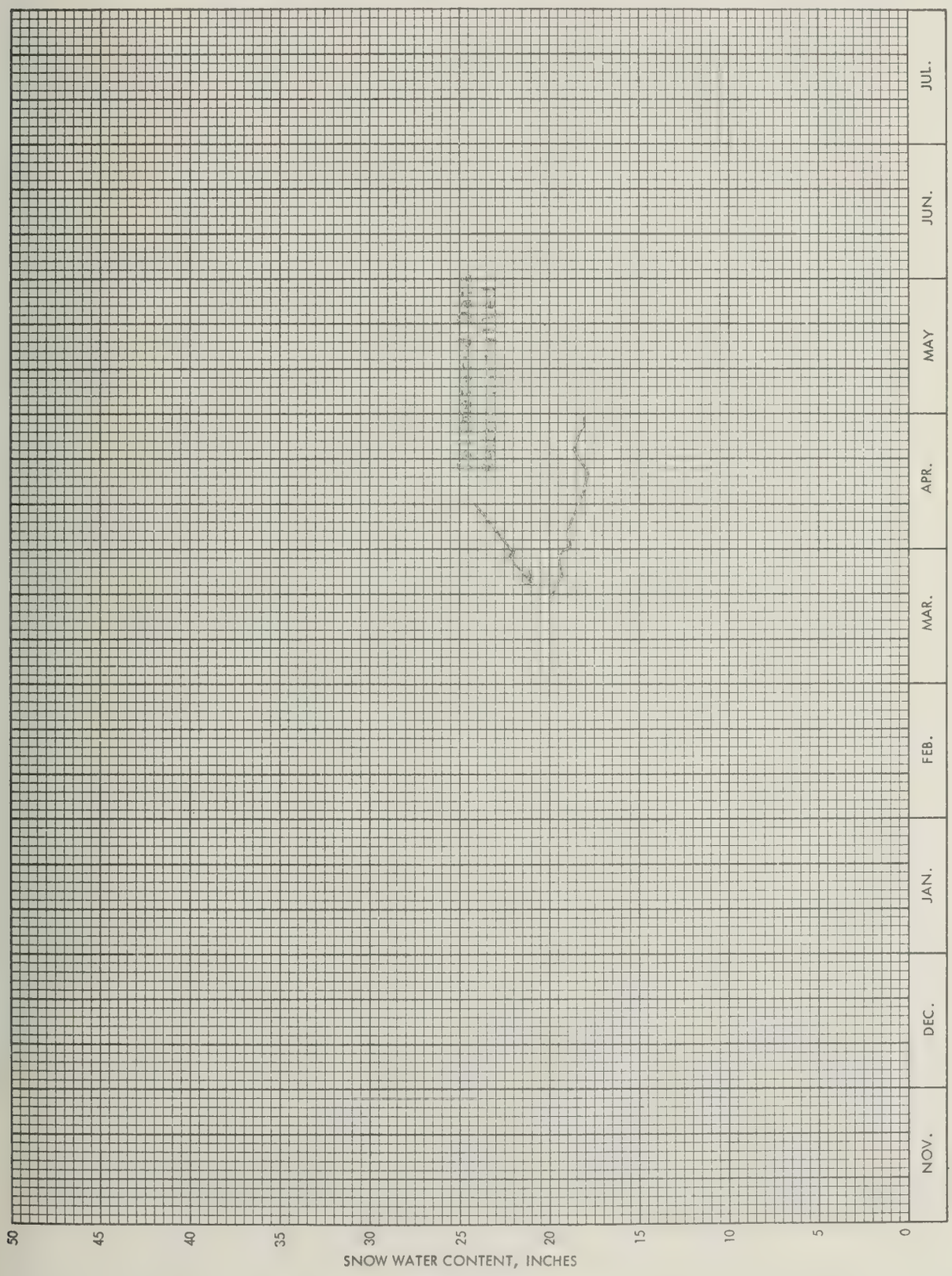
1969 - 70

SNOW PILLOW DATA

TROUGH # 2

Sec. 10 T. 20N R. 20E No. 20B2[illegible] Drainage: [illegible]

Lat. 47° 14' Long. 120° 19' Elev. [illegible]



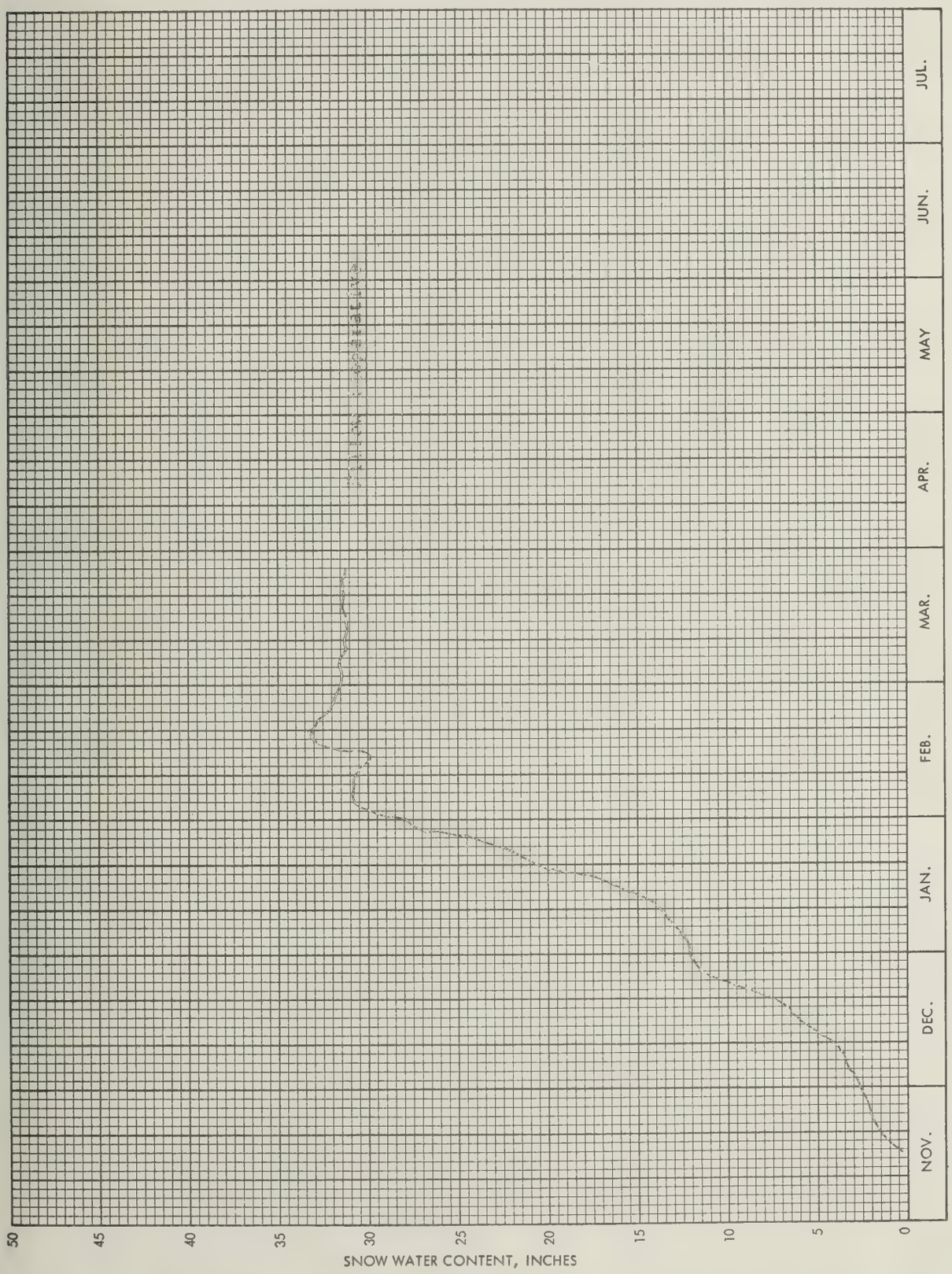
1969 - 70

SNOW PILLOW DATA

Snowshoe Butte - FS

Sec. 28 T. 21N R. 9E No. 2154387 Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 5000'



WSFB-X4

APPENDIX 1
SNOW DATA APRIL 1 to MAY 1, 1970

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/1	115	49.2	40.2	48.4
Baree Midway	15B16	4600	5/1	99	41.1	32.9	--
Baree Trail	15B15	3800	5/1	21	8.7	0.0	1.0*
Benton Meadow	16A2	2344	4/29	0	0.0	0.0	0.0
Benton Spring	16A3	4900	4/29	53	20.6	16.2	17.1
Boyer Mountain	17A2	5250	4/28	69	26.8	26.8	25.2
Brush Creek	14A4	5000	5/4	33	13.2	16.6	10.8
Bunchgrass Meadow	17A1	5000	4/28	70	28.5	32.1	30.4
Heart Lake Trail	14C10	4800	5/1	62	24.3	15.0	17.2
Hoodo Basin	15C10	6000	5/1	138	56.5	51.2	--
Hoodo Creek	15C1	6200	5/1	132	53.2	49.2	52.0*
Lookout	15B2	5250	4/15	99	39.9	42.9	--
			4/30	111	42.4	37.4	36.7
Nelson	Canada	3050	4/29	19	8.0	5.8	6.0**
Schweitzer Bowl	16A6	4500	4/30	71	29.3	25.2	--
Schweitzer Ridge	16A5	6100	4/30	112	43.3	67.0	--
Smith Creek	16A1	4800	4/28	95	37.9	46.7	49.4
Winchester Creek	17A3	2970	4/28	13	5.0	4.1	0.5
KETTLE RIVER							
Barnes Creek	Canada	5500	4/29	49	17.4	17.1	21.2**
Big White Mtn.	Canada	5500	4/30	51	17.8	20.1	20.9**
Bouder Road	18A2	1450	4/26	0	0.0	0.0	--
Butte Creek	18A3	4070	4/26	26	8.0	6.0	5.5*
Cabin Creek	18A8	3170	4/26	11	3.5	3.0	--
Carmi	Canada	4100	4/30	8	2.8	2.0	1.1**
Farron	Canada	4000	4/30	23	9.7	12.5	9.6**
Goat Creek	18A4	3595	4/26	0	0.0	0.0	--
Lower Trapping Cr.	Canada	3050	4/30	0	0.0	0.0	--
#Monashee Pass	Canada	4500	4/29	31	10.3	8.7	13.7**
Snow Caps Creek	18A5	2150	4/26	0	0.0	0.0	--
Snow Caps Trail	18A6	2720	4/26	0	0.0	0.0	--
Summit G. S.	18A7	4600	4/26	26	8.4	7.4	6.3*
Upper Trapping Cr.	Canada	5500	4/30	21	6.7	3.8	--
Old Glory Mountain	Canada	7000	4/25	70	27.6	39.8	29.7
SPOKANE RIVER							
Copper Ridge	16B2	4800	4/30	75	31.2	29.8	27.8
Forty-nine Meadows	15B3	5000	5/4	79	34.2	20.8	31.4*
Fourth of July Summit	16B3	3100	4/30	0	0.0	0.0	--

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-67 average

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SPOKANE RIVER (Cont.)							
Granite Peak	15B13A	6000	5/4	113	47.4	46.1	--
#Lookout	15B2	5250	4/15	99	39.9	42.9	--
			4/30	111	42.4	37.4	36.7
Lost Lake	15B14A	6000	5/4	135	58.0	73.0	--
Lower Sands Creek	16B1	3400	4/30	47	19.9	18.7	14.6
Medicine Ridge	15B4A	6150	5/4	116	45.8	45.5	--
Outlaw Creek	15B12A	3750	Not Measured			0.0	--
Sherwin	16C1	3200	4/27	25	9.4	4.2	--
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	5/1	11	3.7	0.0	--
Blackwall Mountain	Canada	6250	5/1	84	32.0	34.7	36.6**
Bouleau Creek	Canada	5000	4/30	28	9.9	9.1	6.7**
Brenda Mine	Canada	4800	4/28	25	8.6	7.9	--
Brookmere	Canada	3200	4/26	21	6.4	3.5	5.6
Carrs Landing #1	Canada	2250	4/23	0	0.0	0.0	--
Carrs Landing #2	Canada	3200	4/23	0	0.0	0.0	--
Clark +	19A8a	7000	Not Measured			--	--
Enderby	Canada	6250	5/1	97	30.9	42.6	41.9**
#Freezeout Meadows	20A2	5000	4/28	81	29.4	26.0	31.6
Hamilton Hill	Canada	4900	5/1	39	14.4	10.2	11.1**
#Harts Pass	20A5A	6500	4/29	104	41.7	49.0	49.8
Isontok Lake	Canada	5510	5/2	20	5.6	5.0	6.0**
Lost Horse Mountain	Canada	6300	5/1	34	10.0	9.8	9.6**
McCulloch	Canada	4200	4/28	14	4.6	1.1	2.8
Missezula Mountain	Canada	5100	Not Measured			0.0	5.0**
Mission Creek	Canada	6000	4/27	56	18.2	21.1	21.5
Monashee Pass	Canada	4500	4/29	31	10.3	8.7	13.3**
Mount Kobau	Canada	5950	4/29	39	12.7	14.4	--
Mutton Creek No. 1	19A1	5700	4/29	34	13.9	11.2	10.0
Mutton Creek No. 2	19A4	6000	4/29	44	15.4	15.0	15.1
Nickel Plate Mountain	Canada	6200	5/1	30	7.8	7.9	8.3**
Postill Lake	Canada	4500	4/29	24	7.9	5.9	6.6**
Rusty Creek	19A3	4000	4/29	0	0.0	0.0	1.3*
Salmon Meadows	19A2	4500	4/29	21	8.8	6.7	5.0
Silver Star Mountain	Canada	6050	4/29	63	24.5	33.9	27.3**
Summerland Reservoir	Canada	4200	5/2	15	5.3	4.3	--
Trout Creek	Canada	4700	4/27	21	6.2	3.4	4.2

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-67 period

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
METHOW RIVER							
Harts Pass	20A5A	6500	4/29	104	41.7	49.0	49.8
#Mutton Creek No. 1	19A1	5700	4/29	34	13.9	11.2	10.0
#Mutton Creek No. 2	19A4	6000	4/29	44	15.4	15.0	15.1
#Rusty Creek	19A3	4000	4/29	0	0.0	0.0	1.3*
#Salmon Meadows	19A2	4500	4/29	21	8.8	6.7	5.0
CHELAN LAKE BASIN							
Rainy Pass	20A9	4780	4/29	89	36.4	42.6	43.9
Safety Harbor	20A30A	6300	4/28	78	22.9	35.9	--
ENTIAT RIVER							
Brief	20B19	1600	4/25	0	0.0	0.0	0.0*
Entiat Meadows +	20A33a	4800	4/30	72	26.6	38.5	--
Entiat River Trail +	20A34a	3150	4/30	18	7.4	8.8	--
Fox Camp +	20A36a	6510	4/30	128	47.4	63.5	--
Pope Ridge	20B20	4300	4/14	27	11.0	18.6	--
			4/28	23	9.4	8.0	--
Pugh Ridge +	20A32a	6400	4/30	81	30.0	40.0	--
Shady Pass	20A37	5000	4/15	56	21.2	34.9	--
			4/29	62	22.8	33.0	--
Snow Brushy +	20A35a	3850	4/30	61	22.6	25.9	--
Tommy Creek	20B21a	5300	4/30	70	25.9	20.7	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	4/29	53	25.5	25.3	18.2*
Berne-Mill Creek New	21B41SP	3240	4/29	54	23.0	23.6	--
Blewett Pass No. 2	20B2	4270	4/15	37	17.5	18.7	12.1*
			5/1	35	17.1	12.9	8.9
Chiwaukum G. S.	20B16	1810	4/29	0	0.0	2.2	--
#Fish Lake	21B4	3371	4/27	61	27.4	30.9	24. *
Lake Wenatchee	20B5	1970	4/29	0	0.0	0.0	--
Leavenworth R. S.	20B17	1127	4/30	0	0.0	0.0	--
Merritt	20B18	2140	4/29	11	3.8	4.4	--
Stevens Pass	21B1	4070	4/15	112	50.1	65.0	55.7*
			4/29	123	55.5	62.4	55.5
Stevens Pass Sand Shed	21B45	3700	4/15	78	32.6	40.5	--
			4/28	83	36.0	38.4	--

\# Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	4/29	15	6.7	3.5	--
Scout-A-Vista	20B4	3400	4/29	0	0.0	0.0	--
STEMILT CREEK							
Jump-Off	20B8	4450	4/28	16	7.8	4.2	--
Stemilt Slide	20B6	5000	4/27	26	12.4	8.4	4.0*
Upper Wheeler	20B7	4400	4/27	10	4.4	0.0	--
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	4/28	37	17.5	13.7	--
Colockum Creek Lower	20B23	4300	4/28	19	8.2	0.0	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	Not Measured			0.0	0.0*
Big Boulder Creek	21B9	3200	4/27	38	14.6	11.7	5.0*
#Blewett Pass No. 2	20B2	4270	4/15	37	17.5	18.7	12.1*
			5/1	35	17.1	12.9	8.9
Bumping Lake	21C8	3450	Not Measured			--	13.3*
			4/29	41	19.2	9.1	9.3
Bumping Lake New	21C36	3400	4/29	44	19.6		--
Fish Lake	21B4	3371	4/27	61	27.4	30.9	24.1*
Joe Lake	21B46a	4624	Not Measured				
Lemah Creek +	21B47a	3327	4/30	81	35.6	28.2	--
Morse Lake	21C17	5400	4/28	150	63.8	66.3	62.4*
#Olallie Meadows	21B2	3625	4/15	96	44.1	50.0	51.0*
			5/1	106	51.0	52.9	48.1*
#Satus Pass	20D1	4030	4/30	0	0.0	2.5	--
#Stampede Pass	21B10	3000	4/15	102	36.6	50.3	--
			4/30	109	45.5	56.3	46.0
Tunnel Avenue	21B8	2450	Not Measured			--	21.5*
			4/30	37	17.2	20.4	17.4
Waptus Lake	21B49a	3024	4/30	78	34.3	New Marker	
White Pass (E. Side)	21C28	4500	Not Measured			--	27.8*
			5/1	64	29.1	29.0	26.2*
White Pass (L. Lake)	21C27	4500	Not Measured			--	29.6*
			5/1	75	35.8	--	28.0*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	Not Measured			0.0	0.0*

Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	4/30	72	29.5	26.2	--
MILL CREEK							
Tollgate	18D3M	5070	4/29	82	34.3	13.8	17.5
KLICKITAT RIVER							
Satus Pass	20D1	4030	4/30	0	0.0	2.5	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	4/28	103	43.2	57.4	47.8*
#Surprise Lakes	21C13A	4250	4/28	99	45.1	59.3	50.5
WIND RIVER							
Old Man Pass	21D19	3100	4/27	11	2.9	24.9	11.4*
LEWIS RIVER							
Blue Lake +	21C22a	4800	4/28	205	86.4	98.0	90.1*
Bob's Trail	21C21	2200	4/27	4	0.6	14.1	5.7*
Calamity Ridge +	22D1a	2500	4/27	3	0.4	4.6	--
Council Pass +	21C18a	4200	4/28	86	38.4	42.8	35.7*
#Cultus Creek	21C12	4000	4/28	103	43.2	57.4	47.8*
Divide Meadow +	21C29a	5600	4/28	145	62.4	61.4	61.6*
Grand Meadow	21C25	3500	4/28	39	16.6	22.8	22.2*
Lone Pine Shelter	21C26	3800	4/28	88	33.6	--	45.3*
Marble Mountain +	22C5a	3200	4/27	14	5.6	48.4	--
New Muddy River	22C6	1400	4/27	0	0.0	1.1	--
Old Man Pass	21D19	3100	4/27	11	2.9	24.9	11.4*
Plains of Abraham +	22C1a	4400	4/27	234	94.5	94.0	73.8*
Smith Creek Road	22C4	2100	4/27	0	0.0	14.8	--
Spencer Meadow +	21C20a	3400	4/27	13	3.2	26.0	13.0*
Surprise Lakes	21C12A	4250	4/28	99	45.1	59.3	50.5*
Table Mountain +	21C24a	4200	4/28	111	48.0	48.4	44.7*
Timbered Peak +	21D18a	3000	4/27	10	2.0	19.0	12.3*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
COWLITZ RIVER							
Pigtail Peak	21C33	5900	5/1	148	67.5	--	--
#Plains of Abraham +	22C1a	4400	4/27	234	94.5	94.0	73.8
#White Pass (E. Side)	21C28	4500	5/1	64	29.1	29.0	26.2*
#White Pass (L. Lake)	21C27	4500	5/1	75	35.8	--	28.0*
PUGET SOUND DRAINAGE							
WHITE RIVER							
#Morse Lake	21C17	5400	4/28	150	63.8	66.3	62.4
GREEN RIVER							
Snowshoe Butte SP	21B43SP	5000	5/1	148	60.0	70.5	--
Stampede Pass	21B10	3000	4/15	102	36.6	50.3	48.6
			4/30	109	45.5	56.3	46.0
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	4/15	112	50.1	65.0	55.7*
			4/29	123	55.5	62.4	53.5
#Stevens Pass Sand Shed	21B45	3700	4/15	78	32.6	40.5	--
			4/29	83	36.0	38.4	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	4/29	0	0.0	9.0	5.6*
Beaver Pass	21A1	3680	4/28	65	27.0	36.8	35.0
Brown Top +		6000	4/28	144	57.6	New Marker	
Devils Park	20A4	5900	4/29	103	41.5	44.6	49.2
Freezeout Cr. Trail	20A1	3500	4/28	29	10.1	6.2	8.3
Freezeout Meadows	20A2	5000	4/28	81	29.4	26.0	31.6
#Harts Pass	20A5A	6500	4/29	104	41.7	49.0	49.8
Lake Hozomeen	21A2	2600	4/28	13	8.0	5.9	5.8
Meadow Cabins	20A8	1900	4/29	0	0.0	0.0	2.0*
#Rainy Pass	20A9	4780	4/29	89	36.4	42.6	43.9
Thunder Basin	20A7	4200	4/29	63	23.2	26.8	26.9*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
BAKER RIVER							
Baker Pass +	21A27a	4900	4/15	165	69.3	--	--
			5/2	184	82.8	--	--
Dock Butte +	21A11A	3800	4/15	118	49.6	--	86.4
			5/2	128	58.6	81.8	87.1*
Easy Pass +	21A7A	5200	4/15	163	68.5	84.0	--
			5/2	192	85.2	88.3	107.4*
Jasper Pass +	21A6A	5400	4/15	206	86.5	95.4	102.6*
			5/2	190	81.4	99.3	113.6*
Komo Kulshan	21A17	800	5/2	0	0.0	0.0	--
Marten Lake +	21A9A	3600	4/15	142	59.6	82.8	92.3*
			5/2	153	69.5	89.2	93.3*
Mount Blum +	21A18a	5800	4/15	164	68.9	63.4	--
			5/2	162	72.9	--	--
#Panorama New	21A26	4300	4/13	142	66.2	80.8	--
			4/30	151	69.3	89.3	--
Rocky Creek +	21A12A	2100	4/15	3	1.5	36.9	31.8*
			5/2	16	7.1	33.7	20.4*
Schreibers Meadow	21A10A	3400	4/15	106	44.5	73.0	70.5*
			5/2	116	55.0	73.2	73.7*
S. F. Thunder Creek	21A14A	2200	4/15	0	0.0	--	--
			4/30	0	0.0	0.0	--
Sulphur Creek	21A13	1600	5/2	0	0.0	10.1	--
Three Mile Creek	21A8A	4500	4/30	0	0.0	0.0	--
Watson Lakes	21A8A	4500	5/2	137	60.6	84.8	--
NOOKSACK RIVER							
Panorama New	21A26	4300	4/13	142	66.2	80.8	--
			4/30	151	69.3	89.3	--
O L Y M P I C P E N I N S U L A							
DUNGENESS RIVER							
Deer Park	23B4	5200	4/29	54	19.9	27.3	24.3*
MORSE CREEK							
Cox Valley	23B14	4500	4/30	95	38.1	56.1	--
Deer Park G. S.	23B13	4850	4/29	23	7.3	15.8	--
ELWHA RIVER							
Hurricane	23B3	4500	4/28	53	17.9	35.4	28.0*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-67 period

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
SKOKOMISH RIVER							
Black & White	23B7	4200	4/28	79	30.2	--	--
Black & White Lakes	23B6	4700	4/28	134	61.8	--	--
Four Streams	23B10	3000	4/28	28	10.3	--	--
Home Sweet Home	23B5	5200	4/28	177	71.0	--	--
Sundown Pass	23B8	3900	4/28	128	55.4	--	--

USDA-SCS-PORTLAND, OREG. 1969

1952-1967 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Water Resources
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.

and

DEPARTMENT of WATER RESOURCES STATE of WASHINGTON

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AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
JUNE 1, 1970

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P O Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C

Released by

ORLO W. KRAUTER
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SPOKANE, WASHINGTON

In Cooperation with

H. MAURICE AHLQUIST
DIRECTOR
DEPARTMENT OF WATER RESOURCES
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor
SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

WATER SUPPLY OUTLOOK

State of Washington
June 1, 1970

* *
* The water supply outlook for irrigation and power for the state *
* of Washington should improve from that which has been reported *
* these past months. Runoff has been much below normal over most *
* of the state during April and May due to low temperatures but *
* also to the lack of rainfall. With the first of June a marked *
* increase in valley temperatures occurred with many stations re- *
* porting record highs for that date. These high temperatures *
* will increase the evaporation rate and reduce runoff. Unless *
* normal rainfall occurs some of the remaining snowpack will be *
* lost to evaporation. Rainfall appears to be the factor now-- *
* normal precipitation will result in adequate flows from the snow *
* fed streams; sub-normal precipitation with its increased evapor- *
* ation potential will result in water shortages especially later *
* in the season. *
* *

SNOW COVER

Only a few snow courses are measured on May 15 in the state and less on June 1. Of the few, in the state and tributary areas, the snowpack to the north and east is generally better than last year at this time but not as good as the average. Along the Cascades and in the Baker River drainage the snow is much poorer both compared to last year and average. There was an increase, percentage-wise, from the 15th to the 1st due to the lack of melting; also to the north and east and along the Cascades but in the Baker drainage the snowpack percentages remained about the same.

RESERVOIR

None of the reservoirs have filled, except Coeur d'Alene Lake, but it is expected that there will be sufficient runoff during June to bring them up for adequate water this year. The carry-over to next year could be critical unless adequate rainfall occurs during June.

STREAMFLOW

As stated above, runoff was below normal for the Spokane and Walla Walla Rivers. Rivers flowing from western Montana and British Columbia have been especially poor with the Okanogan and Similkameen having flows of 55 and 57 percent, respectively, and the Columbia at Birchbank having a flow of 74 percent of average. Along the central Cascades the Chelan, Wenatchee and Yakima have had river flows of 73 to 90 percent during May. On the west side only Skagit has had a flow less than 75 percent with the rest going as high as 99 percent.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM		USABLE 1/ CAPACITY	1970	1969	1968	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	344.9	289.5	218.0	327.0
Columbia	Franklin D. Roosevelt Lake	5232.0	2141.4	2122.3	2201.2	3965.2
Columbia	Banks Lake	761.8	712.2	347.4	364.4	435.3
Okanogan	Conconully Reservoir	13.0	5.9	12.9	7.9	9.8
Okanogan	Salmon Lake	10.5	9.3	10.5	10.3	9.6
Chelan	Lake Chelan	676.1	309.6	572.5	651.8	467.6
		YAKIMA				
Yakima	Keechelus Lake	157.8	144.6	160.4	146.3	144.8
Kachess	Kachess Lake	239.0	219.4	240.5	224.2	228.9
Cle Elum	Lake Cle Elum	436.9	328.8	421.3	432.1	395.8
Bumping	Bumping Lake	33.7	29.7	29.6	23.2	30.6
Tieton	Rimrock Lake	198.0	157.1	197.5	168.4	180.4
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	890.8	1105.0	1290.5	1000.5
Skagit	Diablo Reservoir	90.6	86.5	87.5	86.2	84.1
Skagit	Gorge Reservoir	9.8	8.3	8.4	8.0	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - JUNE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of June 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	8.5	8.9	9.3
Krause	18B4m	2440	48	13.6	8.7	9.1	7.8
Sheffels	18B5m	2360	48	13.6	8.6	7.9	6.7
Sherman	18B7m	2440	48	13.6	8.2	7.7	7.1
Wheatridge	18B6m	2200	48	13.6	8.4	7.6	7.1
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	3.7	3.6	3.8
Trout Creek	3-M	3600	48	7.3	Destroyed	5.4	4.7
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	4.4	--	4.5
Lake Cle Elum	21B14M	2200	48	12.8	9.2	--	8.9
WALLA WALLA							
Couse	17C3m	3650	48	11.1	9.8	11.0	6.4
Helmers	17C2M	4400	48	12.0	9.7	11.4	10.9
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.2	9.8	9.3

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1969	1968	1967
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.5	7.1	5.2
Krause	18B4m	2440	48	13.6	5.9	5.2	4.9
Sheffels	18B5m	2360	48	13.6	4.5	4.9	3.7
Sherman	18B7m	2200	48	13.6	4.2	3.9	3.6
Wheatridge	18B6m	2200	48	13.6	5.4	4.6	4.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	2.7	2.7	1.5
Trout Creek	3-M	3600	48	7.3	3.8*	4.1	4.0
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	Not available	3.1	4.8
Lake Cle Elum	21B14M	2200	48	12.8	Not available	5.2	9.1
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.1	7.4	5.4
Helmers	17C2M	4400	48	12.0	7.1	7.6	6.7
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.8	5.5	5.6

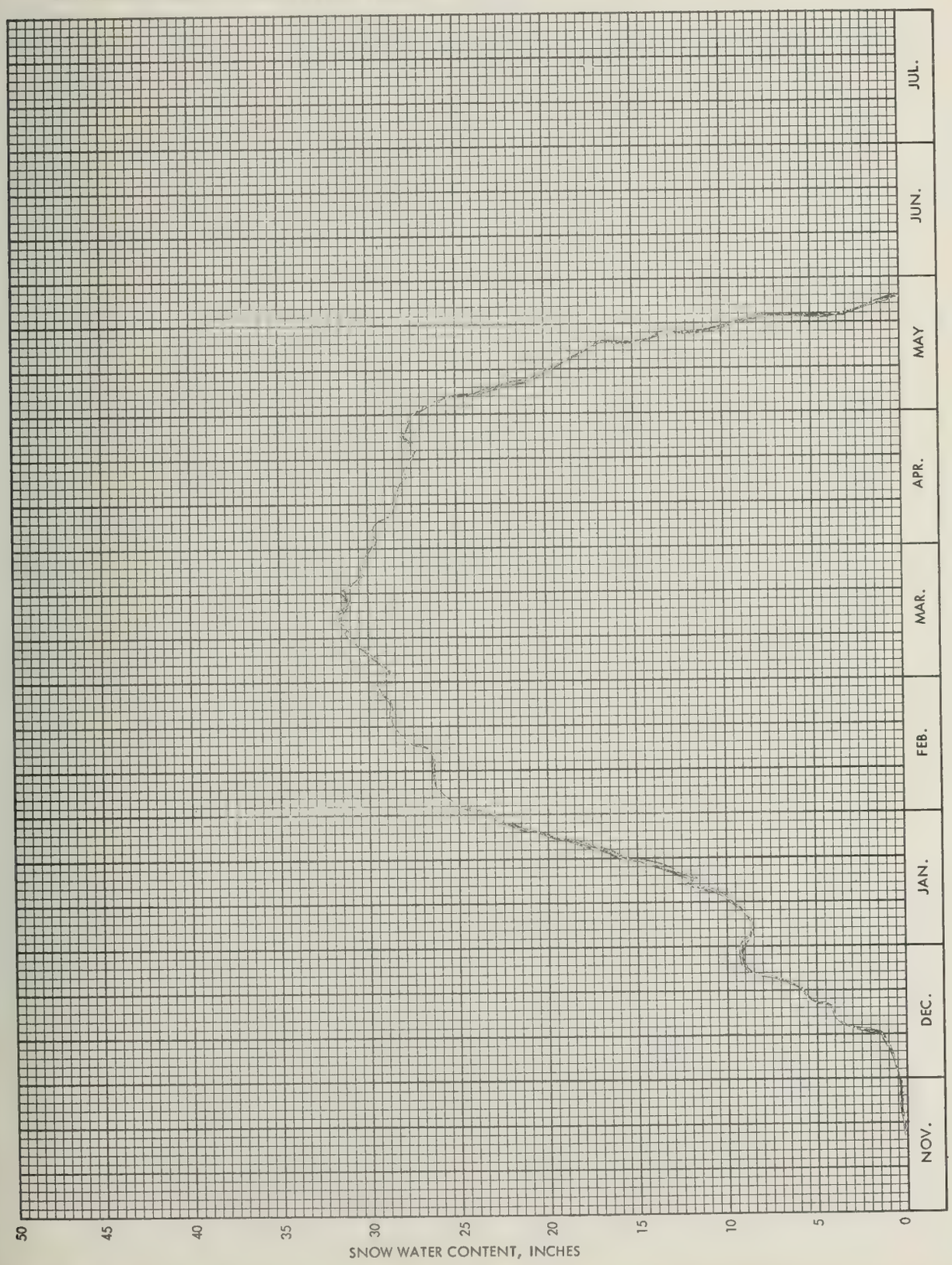
* Nov 1 measurement

SNOW PILLOW DATA

Barre-Mill Creek

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River

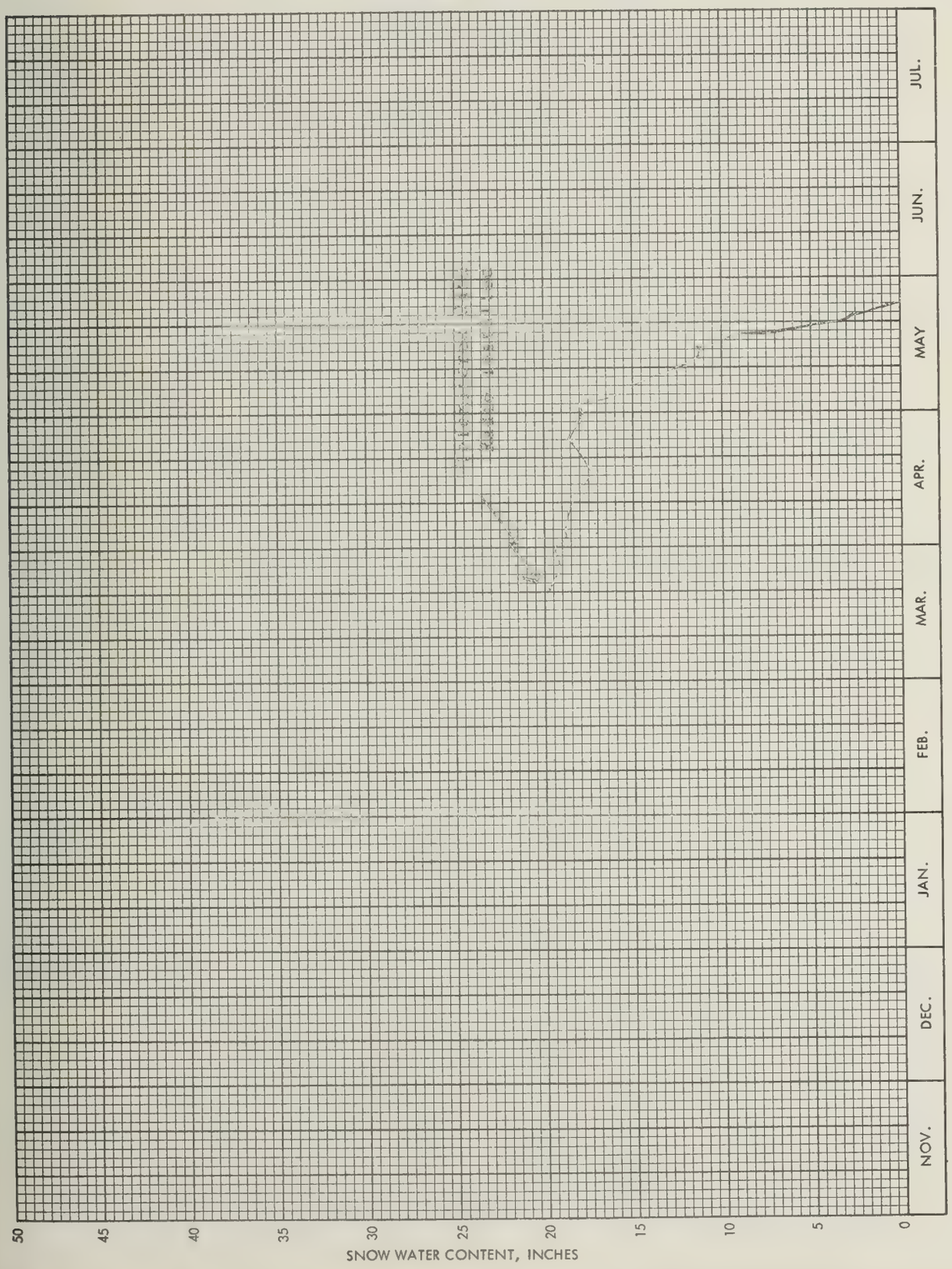
Lat. 47° 46' Long. 121° 01' Elev. 3170'



SNOW PILLOW DATA

Sec. 10 T. 20N R. 20E No. 20E25S1 Drainage: Colockum Creek

Lat. 47° 14' Long. 120° 19' Elev. 5310'



WSFB-X4

APPENDIX 1
CORRECTIONS AND ADDITIONS - 1970 SNOW REPORTS

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
February 1							
OKANOGAN RIVER							
#Horseshoe Basin +	19A5a	7000	2/3	39	10.5	15.4	9.7*
METHOW RIVER							
Horseshoe Basin	19A5a	7000	2/3	39	10.5	15.4	9.7*
YAKIMA RIVER							
Bumping Lake (Old)	21C8	3450	12/18	21	4.2	4.1	4.2*
Bumping Lake (New)	21C36	3400	12/18	25	4.9	4.5	--
LEWIS RIVER							
Lone Pine Shelter	21C26	3800	2/1	74	22.4	38.4	28.8*
COWLITZ RIVER							
Pigtail Peak	21C33	5900	12/18	40	10.4	--	--
Potato Hill	21C14	4500	2/2	80	24.6	36.6	20.8*
WHITE RIVER							
#Cayuse Pass	21C6	5300	1/30	149	49.8	64.4	56.3*
March 1							
CHELAN LAKE BASIN							
Petersons +	20A16a	3730	2/18	78	23.4	--	--
April 1							
METHOW RIVER							
Dollar Watch +	20A29a	7000	2/26	78	26.5	28.1	23.7
May 1							
SKAGIT RIVER							
Lake Hozomeen	21A2	2600	4/28	13	4.0	5.9	5.8

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-67 period

WSFB-X4

APPENDIX 2

SNOW DATA MAY 1 to JUNE 1, 1970

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/14	103	44.6	35.2	43.4*
Baree Midway	15B16	4600	5/14	74	33.2	19.1	--
Baree Trail	15B15	3800	5/14	0	0.0	0.0	0.0*
Hoodoo Basin	15C10	6000	5/28	76	37.8	24.9	--
Hoodoo Creek	15C1	6200	5/28	74	36.5	24.6	32.0
Heart Lake	14C10	4800	5/28	7	3.0	0.0	--
Lookout	15B2	5250	5/14	86	37.9	26.6	--
			6/1	42	20.7	16.6	--
Nelson	Canada	3050	Not Measured			0.0	0.7**
Schweitzer Bowl	16A6	4500	5/28	0	0.0	0.0	--
Schweitzer Ridge	16A5	6100	5/28	60	29.5	43.0	--
KETTLE RIVER							
Big White Mountain	Canada	5500	5/15	41	15.6	16.2	18.0**
			5/30	15	7.6	5.2	9.5**
Carmi	Canada	4100	5/15	0	0.0	0.0	--
Lower Trapping Cr.	Canada	3050	5/15	0	0.0	0.0	--
#Monashee Pass	Canada	4500	5/15	15	6.8	2.8	10.9**
			Not Measured			0.0	2.5**
Old Glory Mountain	Canada	7000	5/9	51	20.1	36.0	29.4**
			5/30	22	8.8	16.4	18.5**
Upper Trapping Cr.	Canada	5500	5/15	0	0.0	0.0	--
SPOKANE RIVER							
Granite Peak	15B13A	6000	6/1	68	32.4	22.4	--
#Lookout	15B2	5250	5/14	86	37.9	26.6	--
			6/1	42	20.7	16.6	--
Lost Lake	15B14A	6000	6/1	79	41.0	43.0	--
Medicine Ridge	15B4A	6150	6/1	69	31.0	25.0	--
OKANOGAN RIVER							
Blackwall Mountain	Canada	6250	Not Measured			31.2	36.0**
			5/27	45	22.4	18.3	28.4**
Enderby	Canada	6250	5/15	Not Measured		44.4	45.5**
			6/1	Not Measured		33.9	40.1**
Hamilton Hill	Canada	4900	Not Measured			3.4	6.8**
			5/28	0	0.0	0.0	0.9**
Isintok Lake	Canada	5510	5/15	12	4.2	1.9	--
Lost Horse Mountain	Canada	6300	5/13	30	8.8	5.6	9.9**
			Not Measured			0.8	3.4**

* Adjusted 1953-67 average

\# Not located directly on this drainage

** Average for years of record

++ 1953-67 period

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
McCulloch	Canada	4200	5/14	0	0.0	0.0	0.7**
Missezula	Canada	5100	5/27	0	0.0	0.0	--
Mission Creek	Canada	6000	5/13	46	16.2	18.2	19.0
			5/25	25	10.5	5.4	11.5
Monashee Pass	Canada	4500	5/15	15	6.8	2.8	10.9**
			Not Measured			0.0	2.5**
Mount Kobau	Canada	5950	5/14	26	10.0	--	--
			5/29	2	0.8	0.0	--
Silver Star Mountain	Canada	6050	5/14	46	20.0	27.3	25.7**
			5/28	21	9.3	7.6	15.6**
Summerland Reservoir	Canada	4200	5/15	2	1.1	0.7	--
Trout Creek	Canada	4700	5/13	8	2.6	0.0	1.1**
ENTIAT RIVER							
Entiat Meadows +	20A33a	4800	Not Measured			33.3	--
			5/28	54	27.0	--	--
Fox Camp +	20A36a	6510	Not Measured			52.0	--
			5/28	72	36.0	--	--
Pope Ridge	20B20	4300	5/14	0	0.0	--	--
Pugh Ridge +	20A32a	6400	Not Measured			31.7	--
			5/28	37	18.5	--	--
Shady Pass	20A37	5000	5/14	46	21.0	25.0	--
Snow Brushy +	20A35a	3850	Not Measured			19.2	--
			5/28	20	10.0	--	--
Tommy Creek +	20B21a	5300	Not Measured			9.4	--
			5/28	14	7.0	--	--
WENATCHEE RIVER							
Stevens Pass	21B1	4070	5/15	102	51.2	45.4	46.6
			5/28	76	39.6	37.6	31.2*
Stevens Pass S. Shed	21B45	3700	5/15	51	25.2	22.2	--
			5/28	27	13.3	8.5	--
YAKIMA RIVER							
#Stampede Pass	21B10	3000	5/15	83	43.8	38.3	--
			6/2	34	21.3	15.2	18.5*
PUGET SOUND DRAINAGE							
GREEN RIVER							
Stampede Pass	21B10	3000	5/15	83	43.8	38.3	--
			6/2	34	21.3	15.2	18.5*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation
++ 1953-67 period

WSFB-X4

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	5/15	102	51.2	45.4	46.6
			5/28	76	39.6	37.6	31.2*
#Stevens Pass S. Shed	21B45	3700	5/15	51	25.2	22.2	--
			5/28	27	13.3	8.5	--
BAKER RIVER							
Baker Pass +	21A27a	4900	5/15	168	79.0	--	--
			6/1	140	77.0	--	--
Dock Butte +	21A11A	3800	5/15	115	54.0	72.4	82.9
			6/1	70	38.5	51.8	66.1
Easy Pass +	21A7A	5200	5/15	144	67.7	78.0	108.0*
			6/1	101	55.5	63.2	--
Jasper Pass +	21A6A	5400	5/15	182	85.5	95.2	112.7*
			6/1	126	69.3	76.8	--
Marten Lake +	21A9A	3600	5/15	140	65.8	81.0	--
			6/1	94	51.7	60.6	--
Mount Blum +	21A18a	5800	5/15	152	71.4	--	--
			6/1	116	63.8	--	--
Rocky Creek +	21A12A	2100	5/15	0	0.0	20.6	--
			6/1	0	0.0	0.0	--
Schreibers Meadow +	21A10A	3400	5/15	94	44.2	66.0	--
			6/1	62	34.1	46.9	--
S. F. Thunder Creek	21A14A	2200	5/15	0	0.0	0.0	--
			6/1	0	0.0	--	--
Sulphur Creek	21A13	1600	Not Measured			1.1	--
Watson Lakes +	21A8A	4500	5/15	114	53.6	76.6	81.7*
			Not Measured			57.8	68.8*

Not located directly on this drainage

* Adjusted 1953-67 average

\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-67 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Water Resources
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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"The Conservation of Water begins with the Snow Survey"

573
36wwa

WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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MAY 2 1972
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
FEB. 1, 1971

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbis Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG. 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

JOHN A. BIGGS
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DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

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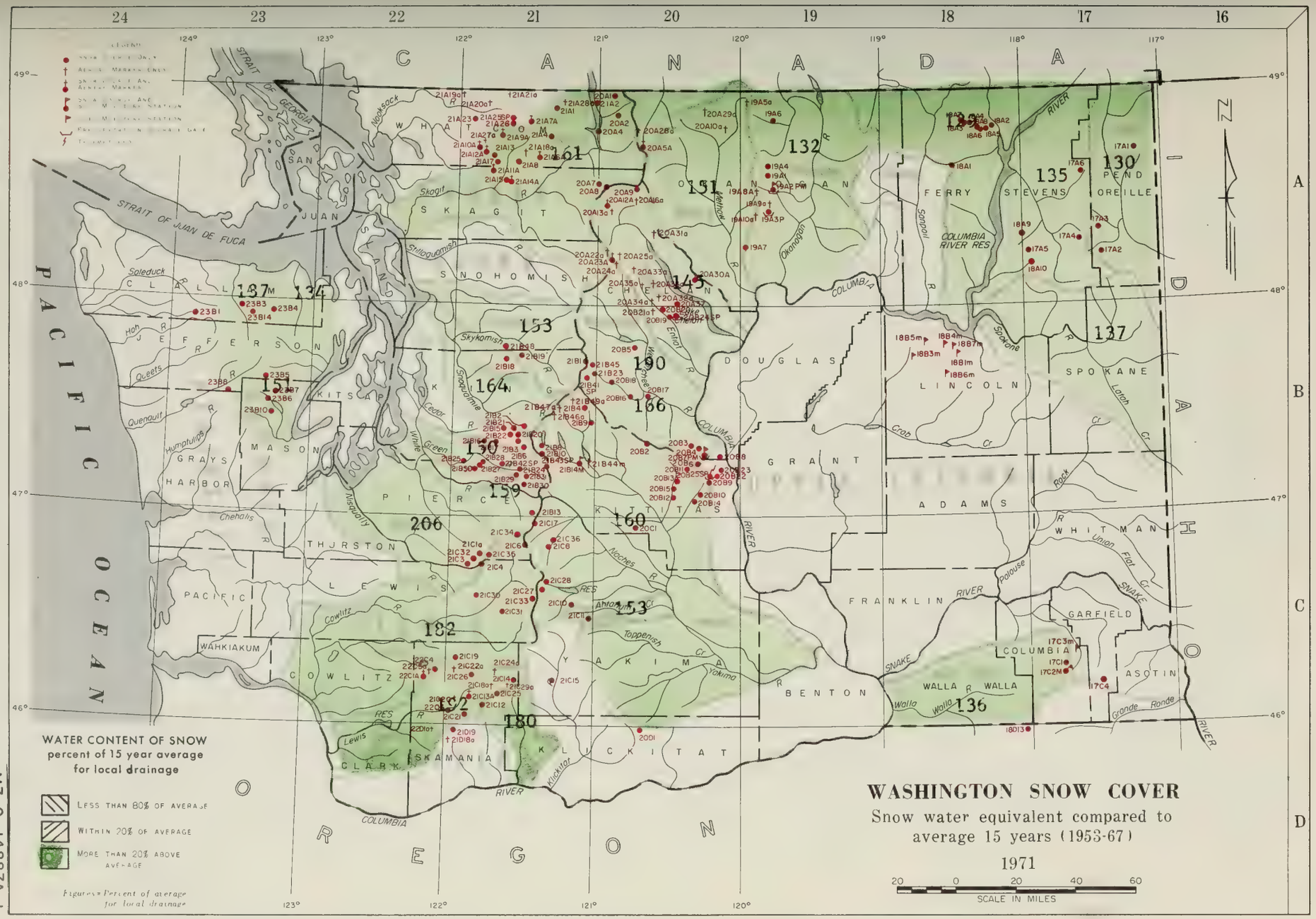

WASHINGTON SNOW COVER
Snow water equivalent compared to average 15 years (1953-67)
1971
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
LESS THAN 80% OF AVERAGE
WITHIN 20% OF AVERAGE
MORE THAN 20% ABOVE AVERAGE
Figures = Percent of average for local drainage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CHELAN
DOUGLAS
OKANOGAN
FERRY
STEVENS
PEND OREILLE
COLUMBIA RIVER RES
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
FRANKLIN
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
YAKIMA
KITTITAS
KLICKITAT
CLARK
SKAMANIA
WAHKIAKUM
COWLITZ
LEWIS
THURSTON
PIERCE
MASON
KITSAP
GRAYS HARBOR
JEFFERSON
CLALLAM
COLUMBIA RIVER
SNAKE RIVER
Grande Ronde RIVER
Walla Walla
Palouse
Spokane
Okanogan
Methow
Entiat
Wenatchee
Yakima
Nooksack
Skagit
Stillaguamish
Skykomish
Snoqualmie
Cedar
White
Green
Nisqually
Chehalis
Cowlitz
Lewis
Toppenish Cr
Ahtanum Cr
Naches
Klickitat
Hoh
Queets
Quillayute
Quinault
Humptulips
Soleduck
Sanpoil
Crab Cr
Lake Cr
Rock Cr
Union Flat Cr
Lake Roosevelt RES
Abercrombie RES
Lewis RES
Hanford Reservation
Grand Coulee Dam
Chief Joseph Dam
Bonneville Dam
Dalles Dam
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. Hood
Mt. St. Helens
Mt. Jefferson
Mt. Shasta
Mt. Ashland
Mt. Pitt
Mt. Olympus
Mt. Ashland
Mt. Pitt
Mt. Olympus
Mt. Shasta
Mt. Jefferson
Mt. Hood
Mt. St. Helens
Mt. Adams
Mt. Rainier
Mt. Baker
Mt. Pitt
Mt. Ashland

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Funchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogon River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	23E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
February 1, 1971

* *
* The water supply outlook for irrigation and power for the Columbia *
* Basin in Washington and its tributary areas can be considered very *
* good for this time of year. Snow surveys made in the state and ad- *
* jacent areas on the first of February show a snowpack that varies *
* from 29% above normal to 106% above. Recent high temperatures have *
* reduced low elevation snowpacks but had no adverse affects on the *
* middle and upper elevation areas except for ripening the snow. The *
* snow cover, as of this date, is more like that which is measured *
* on the first of April or the first of May, both in density and tex- *
* ture. It appears that the snow cover improves, percentagewise, in *
* a southernly direction. The snowpacks in the central area of the *
* state on both sides of the Cascades appear to be better than that *
* which has been measured in the British Columbia portion of the *
* basin. The main power reservoirs, generally, have more water than *
* normal for this time of year while the irrigation reservoirs have *
* less water in storage than normal. The power reservoirs on the *
* west side do not have the surplus that is present in Franklin D. *
* Roosevelt Lake. Runoff during January was greatly improved over *
* that which has been measured during the previous months throughout *
* the state and tributary areas. During January the greatest runoff *
* occurred from low elevation watersheds while many of the high ele- *
* vation areas have just started to recover from the record-low flows *
* of this past year. *
* *

SNOW COVER

All of the watersheds in the Upper Columbia Basin have well above normal snowpacks for this time of year. The northeastern portion of the state, namely, the Pend Oreille and Kettle, appear to have the lowest snow cover, percentagewise, while the Yakima, Wenatchee, Entiat, have the greatest. On the lower Columbia all of the snow cover measurements indicate well above normal snowpacks with the White Salmon, Lewis and Cowlitz near the 200% mark. Variability in the Puget Sound area shows the southern area at 106% above normal and the remainder, White through the Skagit, near the 50% above range. On the Olympic Peninsula, Skokomish comes in at 51%; the Elwha-Dungeness area at 36% above. If normal conditions prevail for the remainder of the snow season more than adequate water will be available for all needs in the basin.

RESERVOIRS

The five reservoirs in the Yakima drainage have 534,200 acre-feet in storage as of February 1 compared to 626,000 acre-feet for the 1953-67 normal period. With the snowpack presently available, these reservoirs

will all fill and spill with the spring runoff. Franklin D. Roosevelt Lake, the key power reservoir, has well above normal amounts of water in storage and is near full as of February 1. Chelan Lake and Ross reservoirs have less water in storage this year compared to normal but greater when compared to last year at this time. The two smaller reservoirs in the Okanogan drainage, Conconully and Salmon, have well below normal amounts. These reservoirs should fill even under adverse subsequent conditions.

PRECIPITATION

Fall precipitation over the state and tributary areas was below normal in the Columbia portion in Canada as well as the central and north-central areas. Above normal precipitation occurred during this period over the rest of the state. For the winter period of November through December only the southeastern area had below normal precipitation although January rainfall was low in the northeastern portion as well.

SOIL MOISTURE

There are 12 soil moisture stations measured in the state. Five of these stations, in Lincoln County, in wheat land, indicate the soil mantle to be only 50% of field capacity as of February 1. The higher elevation soil moisture stations in the Okanogan drainage also have less than 50% of Capacity moisture in the mantle. In the Yakima, Walla Walla and Wenatchee drainages the soil mantle is wetted to near capacity as a result of recent low elevation melting and infiltration.

STREAMFLOW

Forecasts of streamflows are not made until March 1 but the indications are that normal to above streamflow will occur during the subsequent runoff period. With normal or above climatic conditions during this period the water supply picture will improve even more so. River flows during January were generally normal to above with many of the smaller streams peaking out near the last of the month. High flows from the Snake drainage during the month increased the main stem of the Columbia from 7% above normal above the confluence of the Snake to 43% above normal for The Dalles station. The dry, low flow conditions that have occurred from the Similkameen, Okanogan, Kettle and Upper Columbia areas seem to have been broken with near normal flows occurring in this area with the exception of the Okanogan and even this stream had a marked improvement over that which was measured during the previous months.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

ne following tabulation of Washington stream basins presents the water content of ne snow about February 1, 1971, as per cent of the same date in 1970 and 1969 and verage of record.

ributary Basin	No. of Courses Average	Years of Record	1971 Snow Water Expressed as percent of 1970	1969	1953-67 Avg.
		UPPER COLUMBIA BASIN			
Pend Oreille	5 - 11	7 - 34	146	96	130*
Kettle	14	5 - 31	149	89	129*
Colville	2 - 5	9 - 12	179	65	135*
Spokane	3	9 - 26	135	78	137*
Okanogan	25 - 27	4 - 33	141	107	132*
Methow	6	8 - 33	133	97	151*
Chelan	1	33	177	109	145
Entiat	1 - 8	4 - 10	142	122	190*
Wenatchee	8	3 - 26	134	108	166*
Yakima	16 - 21	3 - 49	123	107	160*
Ahtanum	1	29	106	85	153*
		LOWER COLUMBIA			
Mill Creek	2	16 - 17	--	53	136*
Klickitat	1	13	137	111	--
White Salmon	2	13	190	116	180*
Lewis	15 - 17	8 - 13	309	113	192*
Cowlitz	9 - 10	7 - 19	228	125	182*
		PUGET SOUND			
Nisqually	3 - 4	5 - 14	241	156	206*
White	1	19	180	139	159*
Green	5 - 9	9 - 24	202	79	150*
Snoqualmie	1	21	163	102	164*
Skykomish	1 - 2	3 - 26	154	105	153*
Skagit	5 - 8	13 - 23	197	117	161*
Nooksack	1	3	185	150	--
		OLYMPIC PENINSULA			
Skokomish	3 - 5	7 - 13	218	118	151*
Elwha	1	11	229	112	137*
Dungeness	1	17	165	109	134*

* Records of less than 15 years used on computation of averages.

RESERVOIR STORAGE - 1000 Acre Feet

ASIN or TREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1971	1970	1969	Normal*
		COLUMBIA				
ookane	Coeur d'Alene Lake	225.1	202.5	161.1	134.1	137.0
olumbia	Franklin D. Roosevelt Lk.	5232.0	5065.6	4449.4	2430.3	3812.5
olumbia	Banks Lake	761.8	712.2	597.3	714.9	494.0
kanogan	Conconully Reservoir	13.0	5.3	7.0	4.3	5.6
kanogan	Salmon Lake	10.5	2.1	7.8	6.4	8.6
helan	Lake Chelan	676.1	216.3	187.8	254.4	318.4
		YAKIMA				
akima	Keechelus Lake	157.8	97.3	50.3	105.0	92.1
achess	Kachess Lake	239.0	175.3	166.9	194.0	172.2
le Elum	Lake Cle Elum	436.9	170.1	155.6	253.3	241.1
umping	Bumping Lake	33.7	5.3	9.1	4.2	9.9
ieton	Rimrock Lake	198.0	86.2	75.9	135.7	111.3
		PUGET SOUND				
kagit	Ross Reservoir	1202.9	895.4	849.3	835.7	956.3
kagit	Diablo Reservoir	90.6	84.4	83.6	82.6	85.6
kagit	Gorge Reservoir	9.8	7.9	7.5	8.2	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - February

ainage Basin d ation	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches as of Feb. 1 1971	1970	1969
AB CREEK							
ck Woods	18B3m	2600	48	13.6	8.9	8.3	8.9
ause	18B4m	2440	48	13.6	4.9	7.2	7.9
effels	18B5m	2360	48	13.6	5.7	6.1	5.8
erman	18B7m	2440	48	13.6	5.5	6.6	5.8
eatridge	18B6m	2200	48	13.6	8.9	8.4	6.5
ANOGAN							
lmon Meadows	19A2M	4500	48	5.4	2.6	2.1	3.0
out Creek	3-M	3600	48	7.3	3.4**	3.0*	2.8
KIMA							
mery Flat	21B20m	2200	48	6.9	4.9	5.7	4.5
ke Cle Elum	21B14M	2200	48	12.8	9.2	9.1	9.1
LLA WALLA							
use	17C3m	3650	48	11.1	10.6	--	10.2
elmers	17C2M	4400	48	12.0	10.9	--	10.7
ENATCHEE							
per Wheeler	20B7M	4400	48	12.7	10.3	6.8	8.7

January 1 measurement
November 1 measurement

FALL SOIL MOISTURE

rainage nd tation	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1970	1969	1968
RAB CREEK							
ack Woods	18B3m	2600	48	13.6	7.0	7.5	7.1
rause	18B4m	2440	48	13.6	4.4	5.9	5.2
heffels	18B5m	2360	48	13.6	4.4	4.5	4.9
herman	18B7m	2200	48	13.6	3.8	4.2	3.9
heatridge	18B6m	2200	48	13.6	7.8	5.4	4.6
KANOGAN							
almon Meadows	19A2M	4500	48	5.4	1.7	2.7	2.7
rout Creek	3-M	3600	48	7.3	3.4*	3.8*	4.1
AKIMA							
omery Flat	21B20m	2200	48	6.9	2.4	--	3.1
ake Cle Elum	21B14M	2200	48	12.8	7.6	--	5.2
ALLA WALLA							
ouse	17C3m	3650	48	11.1	5.9	6.1	7.4
elmers	17C2M	4400	48	12.0	7.3	7.1	7.6
WENATCHEE							
pper Wheeler	20B7M	4400	48	12.7	5.1	9.8	5.5

* November 1 measurement

PRECIPITATION 1/

Division Averages and Departures

rainage ivisions	FALL Sep - Oct 1970 2/ Average	Departure	Nov - Dec 1970 - Jan 1971 2/ Average	Departure
olumbia in Canada	3.64	-0.25	11.28	+2.22
end Oreille - Spokane	4.30	+0.42	13.69	+1.22
ortheastern Washington	3.16	+0.91	7.85	+0.11
outheastern Washington	3.59	+0.94	7.82	-0.60
entral Washington	3.05	-1.39	22.07	+2.38
orth Central Washington	1.36	-0.05	5.92	+1.34
orthwest Slope Cascades	12.29	+0.62	38.86	+3.23
outhwest Slope Cascades	7.74	+0.02	36.44	+8.29

ortheastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
outheastern Washington	- Touchet, Tucannon and Palouse drainages.
entral Washington	- Yakima, Wenatchee and Chelan drainages.
orth Central Washington	- Methow and Okanogan drainages.
orthwest Slope Cascades	- Puget Sound drainages.
outhwest Slope Cascades	- Lower Columbia drainages.

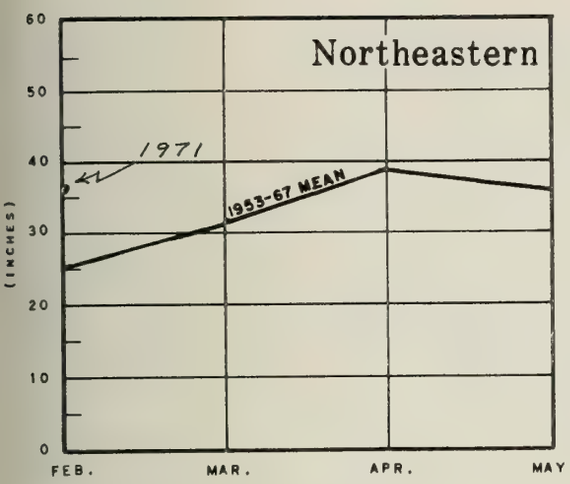
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

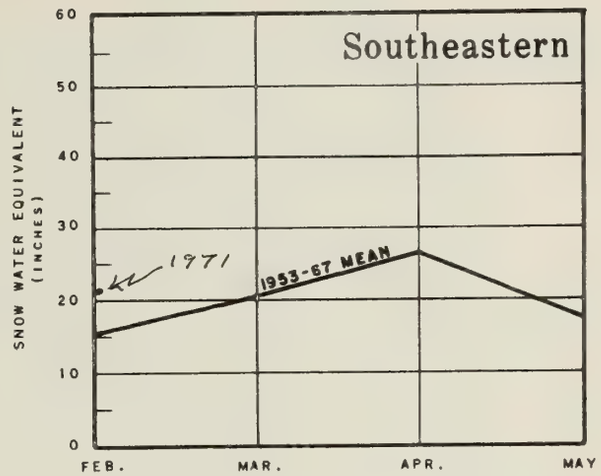
2/ - Departure from 15-year (1953-67) drainage division average.

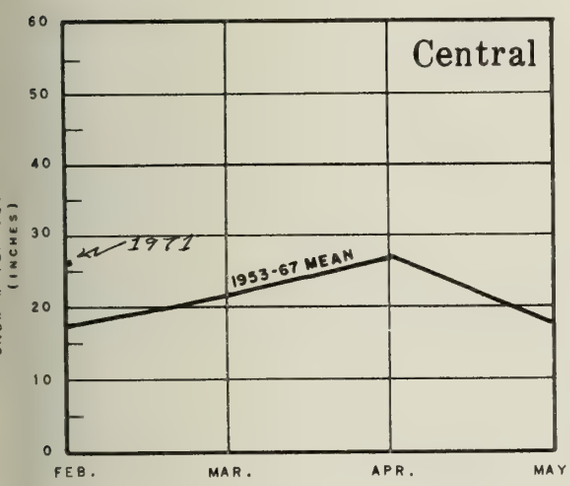
WASHINGTON SNOW COVER

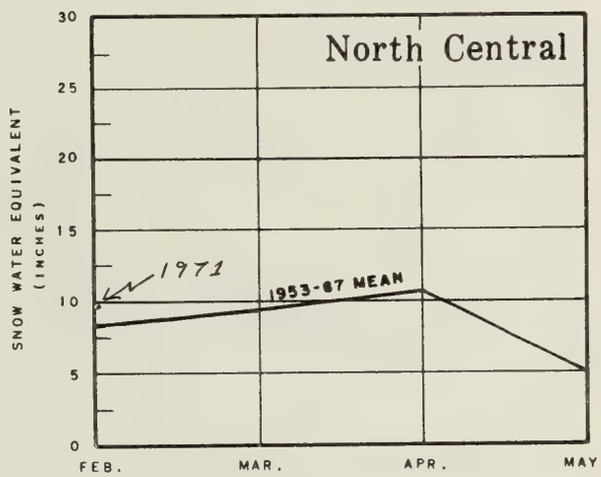
1971

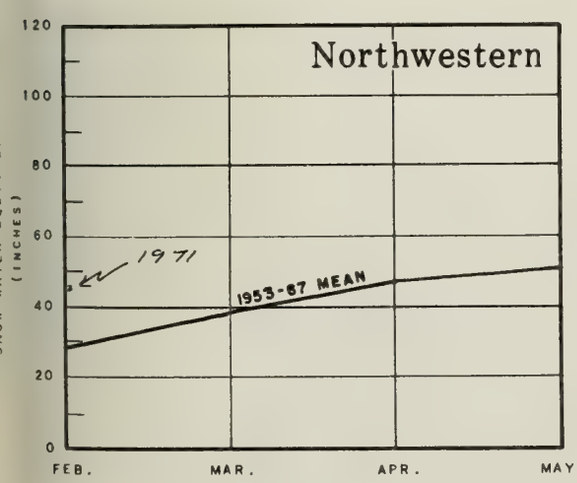
DRAINAGE AREAS

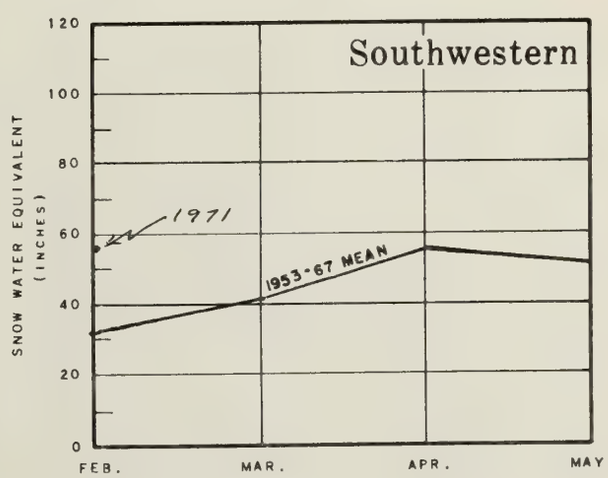










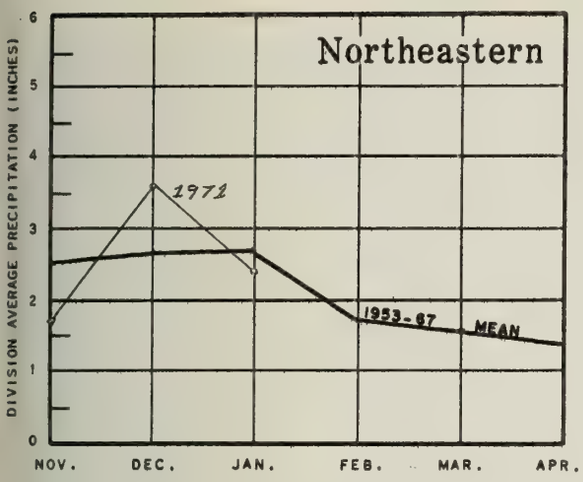


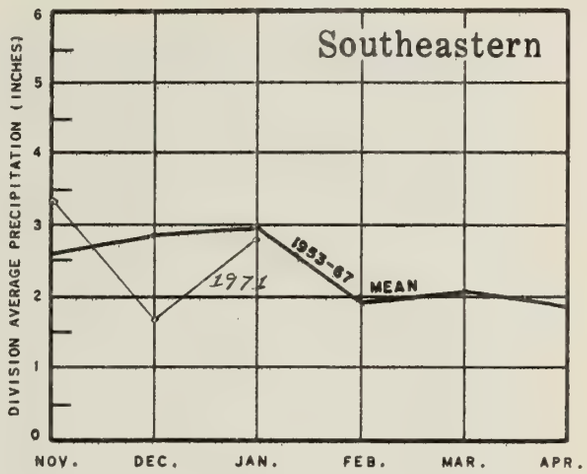
Selected Snow Survey Courses by Soil Conservation Service

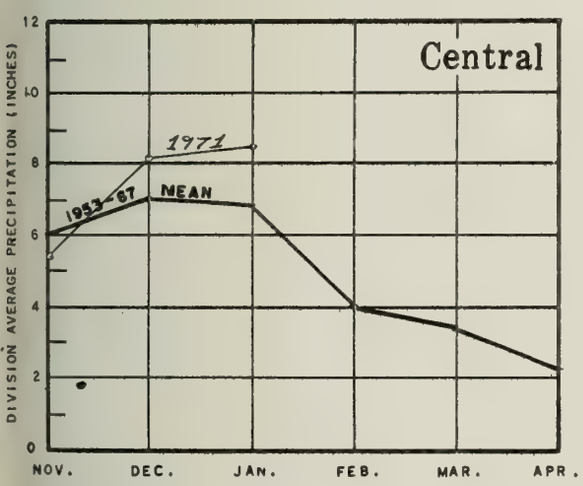
WASHINGTON VALLEY PRECIPITATION

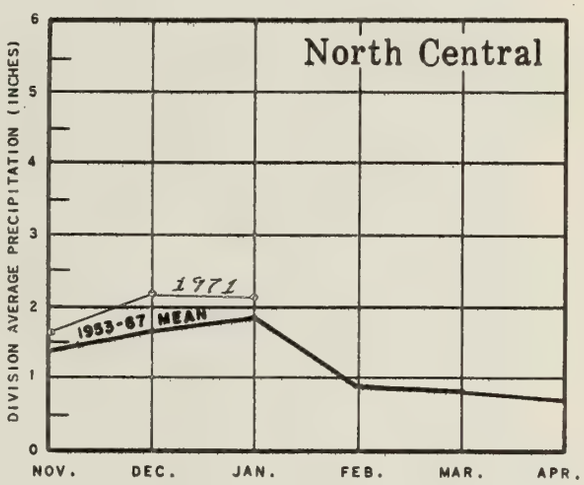
1970-1971

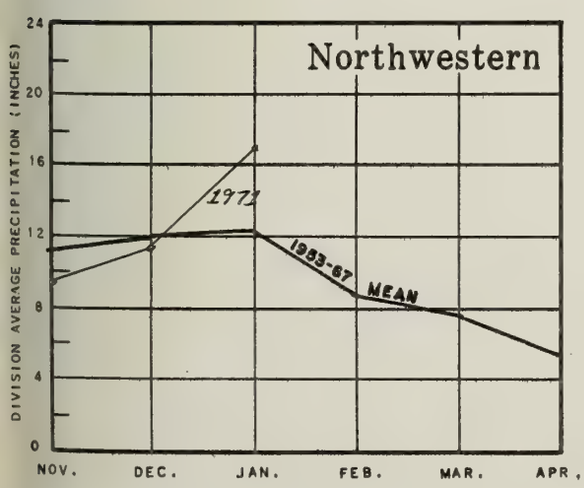
DRAINAGE AREAS

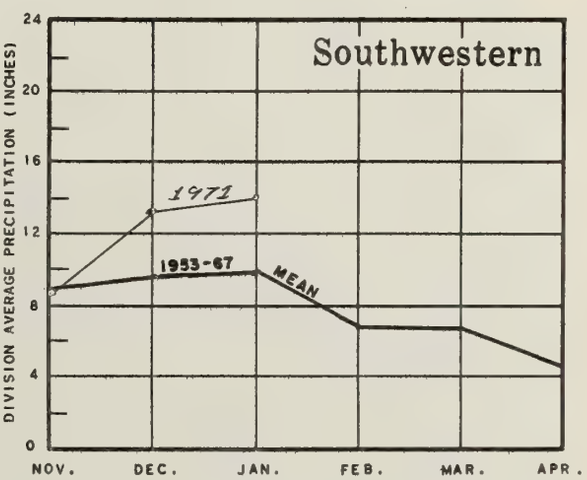












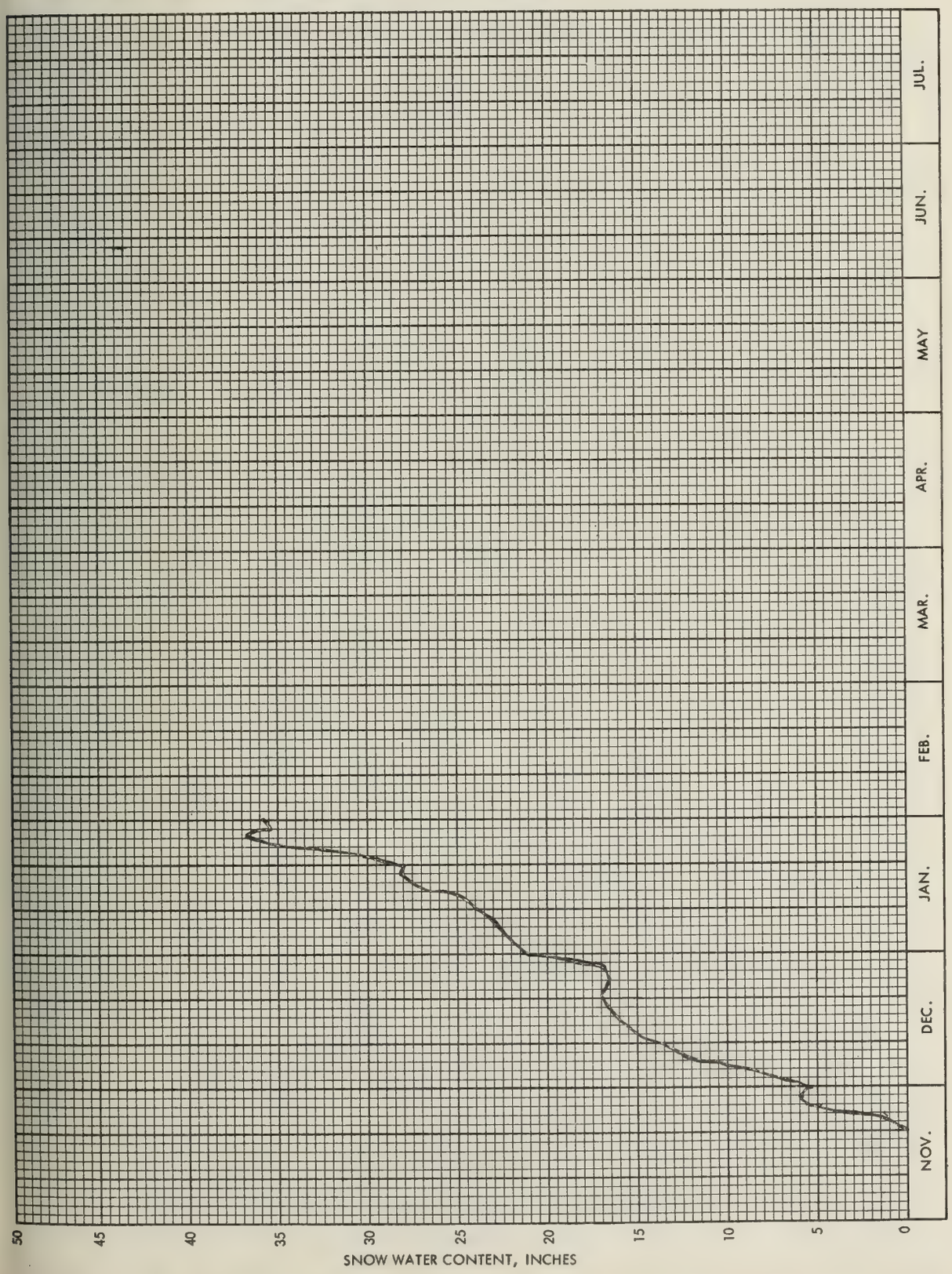
Preliminary Analysis by U. S. Weather Bureau

SNOW PILLOW DATA

Berne-Mill Creek

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee

Lat. 47° 46' Long. 121° 01' Elev. 3170

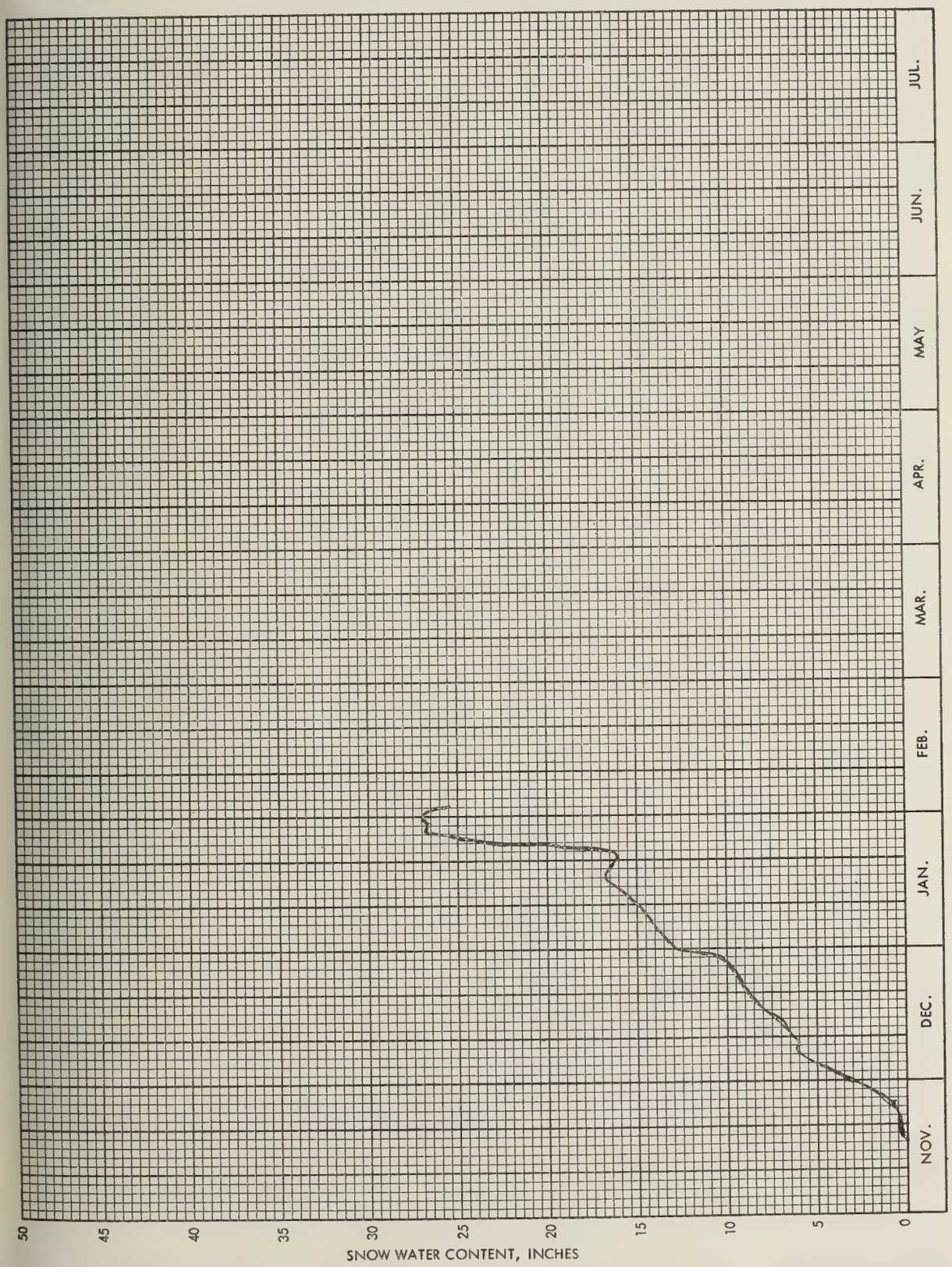


SNOW PILLOW DATA

Cougar Mountain

Sec. 21 T. 21N R. 9E No. 21B4287 Drainage: Green River

Lat. 47° 17" Long. 121° 40" Elev. 3200"



SNOW DATA TO FEBRUARY 1, 1971 - APPENDIX 1

NOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Benton Meadow	16A2	2344	12/30	24	5.9	2.4	3.2
			1/28	20	7.1	8.3	5.1
Benton Spring	16A3	4900	12/31	39	9.0	3.8	8.5
			1/27	49	15.8	11.2	14.4
#Chewelah	17A4	4925	1/31	40	14.5	10.5	13.2*
Heart Lake Trail	14C10	4800	12/29	50	11.4	4.9	--
			1/28	78	26.2	12.8	--
Hoodoo Basin	15C10	6000	12/29	89	25.2	12.9	--
			1/28	139	48.3	33.1	--
Hoodoo Creek	15C01	5900	12/29	84	23.4	10.2	18.0*
			1/28	36	47.0	31.8	32.0
Lookout	15B2	5250	12/31	85	21.8	9.0	15.7
			1/28	109	36.1	24.5	25.0
Nelson	Canada	3050	11/13	0	0.0	--	--
			11/30	9	1.4	--	--
			12/31	40	8.8	--	--
			1/29	44	14.1	8.9	11.2**
Schweitzer Bowl	16A6	4500	12/31	73	17.2	7.7	--
			1/28	80	28.3	21.0	--
Schweitzer Ridge	16A5	6100	12/31	98	28.0	12.0	--
			1/28	109	39.7	23.7	--
Winchester Creek	17A3	2970	1/29	35	12.6	9.4	9.2*
KETTLE RIVER							
Big White Mountain	Canada	5500	2/1	57	15.6	9.4	--
Boulder Road	18A2	1450	11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	--
			12/10	12	3.0	0.5	--
			12/28	26	5.3	1.7	2.1*
			1/11	29	6.3	1.9	3.4*
			1/25	26	7.3	4.0	4.1*
Butte Creek	18A3	4070	11/12	5	1.0	0.0	--
			11/24	6	0.7	0.0	1.5*
			12/10	15	3.3	0.7	2.9*
			12/28	28	6.3	3.0	4.3*
			1/11	29	6.7	2.6	5.8*
			1/25	32	9.1	6.0	6.6*

Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 2

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
KETTLE RIVER (Cont.)							
abin Creek	18A8	3170	11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	1.1*
			12/10	13	3.2	0.8	2.4*
			12/28	26	6.0	3.7	4.2*
			1/11	27	6.2	2.8	5.5*
			1/25	31	8.8	5.3	6.0*
armi	Canada	4100	1/30	25	5.4	4.6	4.3**
arron	Canada	4000	1/29	41	11.7	7.7	9.6**
oat Creek	18A4	3595	11/12	3	0.5	0.0	--
			11/24	0	0.0	0.0	1.0*
			12/10	12	2.9	0.5	2.1*
			12/28	26	5.9	3.4	3.7*
			1/11	26	6.0	2.5	4.9*
			1/25	28	8.2	6.0	5.5*
ower Trapping Creek	Canada	3050	1/30	20	4.0	3.8	4.6**
#Monashee Pass	Canada	4500	1/27	39	7.5	6.4	9.6**
ld Glory Mountain	Canada	7000	1/30	72	25.4	13.0	18.3**
now Caps Creek	18A5	2150	11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	--
			12/10	12	2.8	0.7	--
			12/28	26	5.7	2.7	2.3*
			1/11	28	6.0	2.5	3.5*
			1/25	26	7.0	5.0	4.3*
now Caps Trail	18A6	2720	11/12	0	0.0	0.0	--
			11/24	0	0.0	0.0	--
			12/10	11	3.1	0.8	1.7*
			12/28	26	5.5	3.0	3.0*
			1/11	26	6.2	1.6	4.0*
			1/25	28	7.8	4.8	4.9*

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

X4-N

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APPENDIX 3

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
KETTLE RIVER (Cont.)							
Summit G. S.	18A7	4600	11/12	5	1.0	0.0	--
			11/24	4	1.0	0.0	1.7*
			12/10	10	2.2	0.7	3.0*
			12/28	20	4.3	2.7	4.3*
			1/11	22	5.4	2.9	5.9*
			1/25	27	7.0	4.7	6.7*
Upper Trapping Creek	Canada	5500	1/30	29	8.2	5.6	7.1**
COLVILLE RIVER							
Baird	17A6	3215	1/31	16	4.8	5.6	5.9*
Carlson	18A9	2885	1/30	15	6.0	4.2	4.3*
Chewelah	17A4	4925	1/31	40	14.5	10.5	13.2*
Stranger Mountain	17A5	4990	1/31	47	17.4	4.6	9.8*
Togo	18A10	3370	1/30	38	14.2	9.3	8.6*
SPOKANE RIVER							
4th of July Summit	16B3	3100	12/31	31	6.0	1.8	3.5
			1/28	34	10.0	7.5	6.4
#Lookout	15B2	5250	12/31	85	21.8	9.0	15.7
			1/28	109	36.1	24.5	25.0
Sherwin	16C1	3200	12/31	34	6.8	3.8	--
			2/1	35	11.5	9.3	10.4
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	1/29	20	5.0	4.4	5.1**
Blackwall Peak	Canada	6250	12/24	52	16.2	--	--
			1/27	108	36.5	19.0	23.5**
Bouleau Lake	Canada		12/27	37	4.2	New Course	
			1/30	49	11.0		
Brenda Mine	Canada	4800	1/27	48	9.5	6.8	--
Brookmere	Canada	3200	1/31	33	10.7	6.6	7.1**
Carrs Landing Lower	Canada	2250	1/2	10	1.2	--	--
			1/28	10	3.0	2.3	1.8**
Carrs Landing Upper	Canada	3200	1/2	14	1.8	--	--
			1/28	21	4.0	4.5	4.1**
Clark +	19A8a	7000	1/31	53	15.9	--	--
Copper Mountain	Canada	4300	1/31	19	6.0	--	5.0**
Enderby	Canada	4300	1/27	101	29.1	20.4	23.7**
Hamilton Hill	Canada	4900	1/30	50	16.2	--	9.9**

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

DA-SCS-PORTLAND, OREG. 1970

APPENDIX 4

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
#Harts Pass	20A5A	6500	1/27	134	44.6	26.0	28.2*
#Horseshoe Basin +	19A5a	7000	2/1	44	14.1	10.5	9.7*
Isintok Lake	Canada	6300	12/28	18	3.9	--	--
			1/31	24	6.7	4.0	5.4**
Lost Horse Mountain	Canada	6300	2/1	32	9.1	4.6	6.1**
#Loup Loup	19A7	4650	1/29	42	10.6	9.6	6.6**
McCulloch	Canada	4200	12/28	19	3.6	--	--
			1/28	29	4.9	4.3	4.9**
Missezula Mountain	Canada	5100	1/28	35	9.0	--	6.2**
Mission Creek	Canada	6000	1/28	67	18.5	9.6	13.0**
Monashee Pass	Canada	6000	1/27	39	7.5	6.4	9.6**
Mount Kobau	Canada	6000	1/29	45	13.5	9.6	10.5**
Muckamuck +	19A9a	6390	1/31	50	15.0	--	--
Mutton Creek No. 1	19A1	5700	1/27	55	14.6	11.0	9.7*
Mutton Creek No. 2	19A4	6000	1/29	50	15.0	10.6	10.1*
New Copper Mountain	Canada	4300	1/31	24	6.5	6.5	5.3**
Paysayten +	20A28a	4300	2/1	56	17.9	--	11.6*
Postill Lake	Canada	4500	1/29	30	7.3	5.0	5.8**
Rusty Creek	19A3	4000	1/29	30	8.8	6.6	5.6
Salmon Meadows	19A2	4500	1/28	43	9.8	9.2	7.5*
Silver Star Mountain	Canada	6050	1/30	73	22.6	15.2	17.7*
Starvation Mountain	19A10a	6750	1/31	53	15.9	--	--
Summerland Reservoir	Canada	4200	12/27	22	4.6	--	--
			1/30	33	8.9	5.9	7.3**
Touts Coulee	19A6	2845	1/28	22	5.2	4.0	3.1*
Trout Creek	Canada	4700	1/28	33	7.2	4.6	5.0**
METHOW RIVER							
Billy Goat Pass +	21A10a	6409	2/1	102	32.6	24.8	21.5*
Dollar Watch +	20A29a	7000	2/1	81	25.9	18.6	18.4*
Harts Pass	20A5A	6500	1/27	134	44.6	26.0	28.2*
Horseshoe Basin +	19A5A	7000	2/1	44	14.1	10.5	9.7*
Loup Loup	19A7	4650	1/29	42	10.6	9.6	6.6*
#Mutton Creek No. 1	19A1	5700	1/27	55	14.6	11.0	9.7*
#Mutton Creek No. 2	19A4	6000	1/29	50	15.0	10.6	10.1*
#Rusty Creek	19A3	4000	1/29	30	8.8	6.6	5.6
#Salmon Meadows	19A2	4500	1/28	43	9.8	9.2	7.5*
#War Creek Pass +	20A31a	6500	2/1	116	37.1	--	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observations

++ 1953-1967 period

APPENDIX 5

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	2/1	98	31.4	--	27.4*
Greenwood Flat +	20A25a	3540	2/1	86	27.5	--	21.6*
Little Meadows +	20A24a	5275	2/1	94	30.1	--	29.9*
Lyman Lake +	20A23A	5900	2/1	149	47.7	--	38.9*
Park Creek Flat +	20A13a	2220	2/1	90	28.8	--	27.8*
Park Creek Ridge	20A12A	4600	2/1	121	38.7	--	35.3*
Petersons +	20A16a	3730	2/1	96	30.7	--	26.2*
Rainy Pass	20A9	4780	1/28	129	39.8	22.4	27.5*
Safety Harbor +	20A30A	6300	2/1	89	28.5	--	--
War Creek Pass +	20A31a	6500	2/1	116	37.1	--	--
ENTIAT RIVER							
Brief	20B19	1600	1/27	35	12.0	9.0	6.3*
Entiat Meadows +	20A33a	4800	1/27	150	48.0	--	--
Entiat River Trail +	20A34a	3150	1/27	76	27.4	--	--
Fox Camp +	20A36a	6510	1/27	158	50.6	--	--
Pope Ridge	20B20	4300	1/28	61	21.8	14.5	--
Pope Ridge SP	20B24SP	4300	Not available			--	--
Pugh Ridge +	20A32a	6400	1/27	109	34.9	--	--
Shady Pass	20A37	6200	1/29	87	28.2	--	--
Snow Brushy +	20A35a	3850	1/27	135	43.2	--	--
Tommy Creek +	20B21a	5300	1/27	100	32.0	--	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	11/30	21	7.0	--	4.8*
			12/14	48	13.7	4.5	7.3*
			12/31	78	20.8	9.2	11.4*
			1/18	74	25.6	11.5	17.1*
			1/29	86	34.5	23.0	20.7*
Berne-Mill Creek New	21A41SP	3240	10/30	0	0.0	0.0	--
			11/30	20	6.2	--	--
			12/31	76	21.0	10.0	--
			1/29	78	33.6	22.4	--
Blewett Pass No. 2	20B2	4270	12/29	30	8.1	4.6	6.3
			1/28	58	20.3	14.8	11.2

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

APPENDIX 6

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
WENATCHEE RIVER							
Chiwaukum G. S.	20B16	1810	11/30	13	3.2	--	1.7*
			12/14	22	5.2	2.7	2.7*
			12/31	47	9.6	5.2	4.6*
			1/18	47	13.0	6.4	7.5*
			1/29	46	15.2	13.4	9.0*
Lake Wenatchee	20B5	1970	11/30	15	4.1	--	--
			12/14	28	6.6	2.0	3.7*
			12/31	52	11.4	4.6	5.8*
			1/18	50	15.0	6.1	9.6*
			1/29	48	18.1	13.7	12.0*
Leavenworth R. S.	20B17	1127	10/28	0	0.0	0.0	--
			11/13	0	0.0	0.0	--
			11/25	6	2.0	0.0	--
			12/14	19	4.6	2.0	--
			12/28	30	5.6	4.5	2.9*
			1/12	24	8.0	5.7	4.0*
			1/29	24	8.6	9.7	5.0*
#Lyman Lake +	20A23A	5900	2/1	149	47.7	--	38.9*
Merritt	20B18	2140	11/30	17	5.2	--	2.9*
			12/14	35	10.2	2.4	4.6*
			12/31	63	16.4	5.6	8.0*
			1/18	58	20.2	7.4	12.0*
			1/29	54	23.6	16.4	14.1*
Stevens Pass	21B1	4070	10/30	13	2.5	0.0	--
			11/13	16	3.8	0.0	--
			11/30	41	12.1	3.1	10.0*
			12/14	77	23.4	8.6	14.7*
			12/31	120	33.5	16.4	20.8
			1/18	118	41.7	21.7	26.6
			1/29	145	52.5	35.3	34.4
Stevens Pass Sand Shed	21B45	3700	10/30	0	0.0	0.0	--
			11/30	28	8.6	--	--
			12/14	58	17.5	5.2	--
			12/31	91	25.3	11.4	--
			1/18	88	30.2	15.4	--
			1/29	110	40.1	25.0	--

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

APPENDIX 7

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	1/27	45	14.8	14.3	--
Colockum Creek Lower	20B23	4300	1/27	35	10.5	12.0	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	1/27	32	10.2	10.4	5.1*
Scout-A-Vista	20B4	3400	1/27	31	9.2	9.8	5.4*
STEMILT CREEK							
Jump-Off	20B8	4450	1/27	34	11.4	10.2	4.8*
Stemilt Slide	20B6	5000	1/27	56	16.3	11.0	10.0*
Upper Wheeler	20B7	4400	1/27	35	12.3	11.6	6.5*
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	12/27	22	5.3	4.6	3.2
			1/27	27	8.7	8.2	5.7
#Blewett Pass No. 2	20B2	4270	12/29	30	8.1	4.6	6.3
			1/28	58	20.3	14.8	11.2
Bumping Lake (Old)	21C8	3450	12/1	22	3.9	--	3.8*
			12/16	41	9.0	4.2	4.2*
			12/31	54	14.1	8.9	6.6
			1/18	55	18.9	12.0	10.6*
			1/31	52	21.5	22.2	12.3
Bumping Lake New	21C36	3400	12/1	27	4.8	--	--
			12/16	47	9.6	4.9	--
			12/31	59	16.6	9.6	--
			1/18	60	22.1	13.4	--
			1/31	61	26.0	24.2	--
#Cayuse Pass	21C6	5300	1/1	165	51.5	23.6	--
			1/27	231	89.6	49.8	56.3
Colockum Pass	20B9	5370	1/28	60	17.8	12.7	--
Cooke Creek	20B10	4123	1/28	29	8.8	9.6	5.0*
Grouse Camp	20B11	5385	1/29	58	17.4	--	12.2*
High Creek	20B12	2930	1/29	28	8.0	7.7	4.6*
Joe Lake +	21B46a	4624	Not Measured			45.9	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

S-PORTLAND, OREG. 1970

APPENDIX 8

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
Lake Cle Elum	21B14M	2200	12/1	17	3.0	--	--
			12/14	20	4.7	2.0	1.7*
			1/4	34	8.3	3.6	3.9*
			1/17	32	8.7	4.5	5.9*
			1/29	26	10.9	11.7	7.8
Lemah Creek +	21B47a	3327	1/27	117	41.0	32.4	--
Manashtash	20C1	3935	1/27	22	6.7	8.4	3.4*
Morse Lake	21C17	5400	Not Measured			39.6	39.7*
Nanum	20B13	3875	1/29	38	11.2	9.1	6.9*
#Olallie Meadows	21B2	3625	1/29	135	49.4	30.3	30.2*
#Satus Pass	20D1	4030	1/28	45	16.6	12.1	--
#Stampede Pass	21B10	3000	Not measured			--	--
			Not measured			--	--
			Not measured			2.0	7.4*
			Not measured			6.5	10.8*
			1/1	109	19.0	16.9	16.9*
			1/15	124	26.3	15.0	21.4*
			1/31	115	27.8	27.9	28.8
Trail Creek	20B14	3360	1/28	17	5.5	5.3	--
Tunnel Avenue	21B8	2450	11/28	20	4.2	--	--
			12/15	48	12.6	1.8	5.5*
			1/1	70	17.4	4.8	8.6
			1/14	63	18.2	7.1	13.1*
			1/30	68	26.0	17.5	17.0
Walters Flat	20B15	3360	1/29	32	9.0	8.0	5.9*
Waptus Lake +	21B49a	3024	1/27	125	43.8	30.6	--
Van Epps Pass +	20B26a		1/27	156	54.6	New Aerial	
White Pass (E. Side)	21C28	4500	12/7	27	6.9	--	--
			12/18	35	9.9	5.0	--
			1/5	54	15.4	6.7	11.1*
			1/16	69	20.4	14.1	13.7*
			1/29	82	29.9	19.3	16.7*
White Pass (Leech L.)	21C27	4500	12/7	28	9.2	--	--
			12/18	38	12.2	6.7	--
			12/29	51	12.7	9.8	13.3*
			1/16	78	24.8	15.1	--
			1/28	98	33.1	23.8	20.6*

\# Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

CS-PORTLAND, OREG. 1970

APPENDIX 9

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	12/27	22	5.3	4.6	3.2*
			1/27	27	8.7	8.2	5.7
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	1/25	65	21.9	20.0	--
MILL CREEK							
Homestead	17C1	4030	1/28	23	7.5	--	5.5*
Martin Springs	17C2	4400	1/28	34	11.4	--	8.4*
KLICKITAT RIVER							
Satus Pass	20D1	4030	1/28	45	16.6	12.1	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	1/2	102	32.7	16.6	15.4*
			1/27	143	53.4	28.4	29.4*
Surprise Lakes	21C13A	4250	1/2	107	33.3	16.0	18.5*
			1/27	154	57.8	30.3	32.7*
WIND RIVER							
Old Man Pass	21D19	3100	12/31	60	15.9	4.3	4.1*
			1/27	84	29.2	8.1	12.5*
LEWIS RIVER							
Blue Lake +	21C22a	4800	1/2	180	57.6	25.0	30.1*
			1/27	236	85.0	53.2	56.0*
Bob's Trail	21C21	2200	1/2	49	12.9	2.0	6.3*
			1/27	72	22.3	4.6	9.7*
Calamity Ridge +	22D1a	2500	1/2	30	7.8	1.8	--
			1/27	33	12.5	3.3	--
Council Pass +	21C18a	4200	1/2	99	29.7	13.0	18.4*
			1/27	132	50.2	25.6	27.4*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

CS-PORTLAND, OREG. 1970

APPENDIX 10

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LEWIS RIVER (Cont.)							
#Cultus Creek	21C12	4000	1/2	102	32.7	16.6	15.4*
			1/27	143	53.4	28.4	29.4*
Divide Meadow +	21C29a	5600	1/2	112	35.8	14.7	24.7*
			1/27	156	57.7	37.4	39.5*
Grand Meadow	21C25	3500	1/2	58	16.2	7.9	9.7
			1/27	94	30.4	15.0	16.9*
Lone Pine Shelter	21C26	3800	1/2	105	30.7	10.8	--
			1/28	138	49.7	22.4	28.8*
Marble Mountain	22C5a	3200	12/31	61	20.7	9.8	--
			1/27	115	49.4	12.8	--
#Mosquito Meadows	21C19	4100	1/2	110	32.6	12.9	--
			1/28	138	52.6	23.1	31.8*
New Muddy River	22C6	2200	1/3	39	12.4	0.7	--
			1/28	43	16.0	2.2	--
Old Man Pass	21D19	3100	12/31	60	15.9	4.3	4.1*
			1/27	84	29.2	8.1	12.5*
Plains of Abraham +	22C1a	4400	1/2	160	51.2	24.3	22.1*
			1/27	180	68.4	--	39.0*
Smith Creek Road	22C4	2100	1/3	58	20.3	7.9	6.5*
			1/28	70	28.8	14.2	11.9*
Spencer Meadow +	21C20a	3400	1/2	76	20.5	6.2	7.8*
			1/27	96	35.5	11.0	14.3*
Surprise Lakes	21C13A	4250	1/2	107	33.3	16.0	18.5*
			1/27	154	57.8	30.3	32.7*
Table Mountain +	21C24a	4200	1/2	119	34.2	15.7	21.1*
			1/27	150	57.0	30.4	32.1*
Timbered Peak +	21D18a	3000	1/2	60	15.6	2.8	--
			1/27	69	26.2	4.0	12.5*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	1/1	165	51.5	23.6	--
			1/27	231	89.6	49.8	56.3*
Mosquito Meadows	21C19	4100	1/2	110	32.6	12.9	--
			1/28	138	52.6	23.1	31.8*
Ohanapecosh	21C32	2200	12/29	40	7.9	2.4	--
			2/3	70	27.5	8.0	13.7*
Packwood Lake	21C31	2870	1/1	33	7.7	1.2	--
			1/27	61	20.1	5.4	8.6*
Pigtail Peak	21C33	5900	12/28	92	27.8	16.1	--
			1/16	135	51.7	27.8	--
			1/28	171	60.8	35.3	--

Not located directly on this drainage
* Adjusted 1953-67 average
+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

CS-PORTLAND, OREG. 1970

W

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
COWLITZ RIVER (Cont.)							
Plains of Abraham +	22C1a	4400	1/2	160	51.2	24.3	22.1
			1/27	180	68.4	--	39.0
Potato Hill	21C14	4500	1/2	80	21.3	10.9	--
			1/28	111	38.3	24.6	20.8*
#White Pass (E. Side)	21C28	4500	12/7	27	6.9	--	--
			12/18	35	9.9	5.0	--
			1/5	54	15.4	6.7	11.1
			1/16	69	20.4	14.1	13.7*
			1/29	82	29.9	19.3	16.7*
#White Pass (Leech L.)	21C27	4500	12/7	28	9.2	--	--
			12/18	38	12.2	6.7	--
			12/29	51	12.7	9.8	13.3*
			1/16	78	24.8	15.1	--
			1/28	98	33.1	23.8	20.6*
Willame Creek	21C30	3250	1/1	73	17.2	5.7	--
			1/27	111	38.4	12.7	21.4*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	12/28	68	16.0	12.6	--
			1/29	151	54.3	27.0	30.7*
Longmire	21C3	2760	12/28	17	4.7	2.2	--
			1/29	52	21.2	4.7	7.3*
New Paradise Park	21C35	5500	12/28	105	32.6	17.2	--
			2/1	155	70.2	48.0	--
Stem Glade	21C1	5050	1/4	126	37.3	21.1	--
			2/1	176	71.1	42.8	47.1*
WHITE RIVER							
#Cayuse Pass	21C6	5300	1/1	165	51.5	23.6	--
			1/27	231	89.6	49.8	56.3*
GREEN RIVER							
Airstrip	21B24	1800	1/2	26	7.0	0.5	--
			1/27	20	6.6	4.2	--
Charley Creek	21B25	1200	1/2	12	4.0	0.0	--
			1/27	2	0.4	0.0	--

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observations

A-SCS-PORTLAND, OREG. 1970

++ 1953-1967 period

APPENDIX 12

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
GREEN RIVER (Cont.)							
Cougar Mountain	21B42SP	3200	2/2	61	23.8	27.8	--
Grass Mountain # 2	21B27	2900	1/2	43	13.3	5.4	6.0*
			1/27	72	29.2	13.1	13.6*
Grass Mountain # 3	21B28	2100	1/2	27	7.8	1.3	--
			1/27	28	11.0	4.3	--
Lester Creek	21B29	3100	1/2	48	11.2	5.8	9.8*
			1/27	70	24.4	12.6	16.3*
Lynn Lake	21B50	4000	1/2	27	9.3	6.5	--
			1/27	72	32.0	7.5	--
Sawmill Ridge	21B31	4700	1/2	67	17.8	9.0	12.0*
			1/27	124	41.4	19.6	27.8*
Snowshoe Butte	21B43SP	5000	12/24	65	20.6	--	--
			Not Measured			29.0	--
Stampede Pass	21B10	3000	1/1	109	19.0	16.9	16.9*
			1/15	124	26.3	15.0	21.4*
			1/31	115	27.8	27.9	28.8
Twin Camp	21B30	4100	1/2	47	13.0	8.4	10.8*
			1/27	81	26.8	16.0	19.3*
SNOQUALMIE RIVER							
Olallie Meadows	21B2	3625	1/29	135	49.4	30.3	30.2*
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	10/30	13	2.5	0.0	--
			11/13	16	3.8	0.0	--
			11/30	41	12.1	3.1	10.0*
			12/14	77	23.4	8.6	14.7*
			12/31	120	33.5	16.4	20.8
			1/18	118	41.7	21.7	26.6
			1/29	145	52.5	35.3	34.4
#Stevens Pass Sand Shed	21B45	3700	10/30	0	0.0	0.0	--
			11/30	28	8.6	--	--
			12/14	58	17.5	5.2	--
			12/31	91	25.3	11.4	--
			1/18	88	30.2	15.4	--
			1/29	110	40.1	25.0	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	1/28	65	22.2	8.6	--

Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

APPENDIX 13

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ‡
SKAGIT RIVER (Cont.)							
Beaver Pass	21A1	3680	1/28	95	36.3	21.7	--
Brown Top Ridge +	21A28a	6000	Late Report			29.6	--
#Cloudy Pass +	20A22a	6500	2/1	98	31.4	--	27.4*
Devils Park	20A4	5900	1/28	119	41.4	24.3	30.2*
Freezeout Cr Trail	20A1	3500	Late Report			9.4	--
Freezeout Meadow	20A2	5000	Late Report			17.1	--
#Harts Pass	20A5A	6500	1/27	134	44.6	26.0	28.2*
Klesilkwa	Canada	3700	2/2	45	17.5	9.1	10.1**
Lake Hozomeen	21A2	2600	Late Report			--	--
#Lyman Lake	20A23A	5900	2/1	149	47.7	--	38.9*
Meadow Cabins	20A8	1900	1/27	34	11.0	4.6	--
New Tashme	Canada	2500	1/31	37	15.1	7.6	7.9**
#Rainy Pass	20A9	4780	1/28	129	39.8	22.4	27.5*
Thunder Basin	20A7	4200	1/28	71	23.3	--	--
BAKER RIVER							
Baker Pass +	21A27a	4900	Note Measured			32.0	--
			Late Report			47.1	--
Dock Butte +	21A11A	3800	12/4	76	15.2	--	--
			12/18	94	23.5	--	--
			1/3	112	33.6	--	--
			Not Measured			20.8	--
			Late Report			31.9	--
Easy Pass +	21A7A	5200	12/4	58	11.6	--	--
			12/18	90	22.5	--	--
			1/3	120	36.0	--	--
			Not Measured			--	--
			Late Report			43.3	59.0*
Jasper Pass +	21A6A	5400	12/4	86	17.2	--	--
			12/18	144	36.0	--	--
			1/3	168	50.4	--	--
			Not Measured			39.0	--
			Late Report			58.5	68.5*
Marten Lake +	21A9A	3600	12/4	76	15.2	--	--
			1/3	120	36.0	--	--
			Not Measured			29.8	--
			Late Report			44.8	56.4*
Mt. Blum +	21A18a	5800	12/4	45	9.0	--	--
			12/18	64	16.0	--	--
			1/3	90	27.0	--	--
			Not Measured			15.4	--
			Late Report			34.2	--

Not located directly on this drainage
** Average for years of record
* Adjusted 1953-67 average
+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 14

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
BAKER RIVER (Cont.)							
#Panorama New	21A26	4300	1/16	157	54.3	28.6	--
			1/30	154	73.3	39.7	--
Rocky Creek	21A12A	2100	12/18	47	11.8	--	--
			1/3	75	22.5	--	--
			Not Measured			8.6	--
			Late Report			12.2	19.6*
Schreibers Meadow	21A10A	3400	12/4	55	11.0	--	--
			12/18	89	22.2	--	--
			1/3	117	35.1	--	--
			Not Measured			20.8	--
			Late Report			32.7	42.5*
S. F. Thunder Creek	21A14A	2200	12/18	12	3.0	--	--
			1/3	33	9.9	--	--
			Not Measured			1.9	--
			Late Report			3.0	4.6*
Watson Lakes	21A8A	4500	12/18	90	22.5	--	--
			1/3	116	34.8	--	--
			Not Measured			21.8	--
			Late Report			30.4	46.0*
NOOKSACK RIVER							
Panorama New	21A26	4300	1/16	157	54.3	28.6	--
			1/30	154	73.3	39.7	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	1/27	66	21.9	13.3	16.3*
MORSE CREEK							
Cox Valley	23B14	4500	1/29	114	42.7	23.1	--
ELWHA RIVER							
Hurricane	23B3	4500	1/28	73	24.0	10.5	17.5*

Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

APPENDIX 15

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SKOKOMISH RIVER							
Black & White	23B7	4200	1/1	106	29.8	11.9	--
			1/28	116	46.5	19.1	29.0*
Black & White Lakes	23B6	4700	1/1	135	43.0	25.1	--
			1/28	153	65.0	38.2	41.5*
Four Streams	23B10	3000	1/1	98	28.1	9.4	--
			1/28	100	41.1	13.9	--
Home Sweet Home	23B5	5200	1/1	168	52.7	28.2	--
			1/28	196	74.0	39.8	54.8*
Sundown Pass	23B8	3900	1/1	149	48.0	--	--
			1/28	175	67.6	35.0	--
NOOKSACK RIVER							
Glacier Creek	21A23	3700	12/2	27	4.9	--	--
			12/28	35	10.3	--	--

* Adjusted 1953-67 average

++ · 1953-1967 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAR. 1, 1971

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter an spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delaye estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations i mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth a water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbis Basin in British Columbia. Networks of automatic snow water equivale and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow wat and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including select streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 i cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Cen Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICU SOIL CONSERVATION SERV
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA-SCS-PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
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In Cooperation with

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Report prepared by

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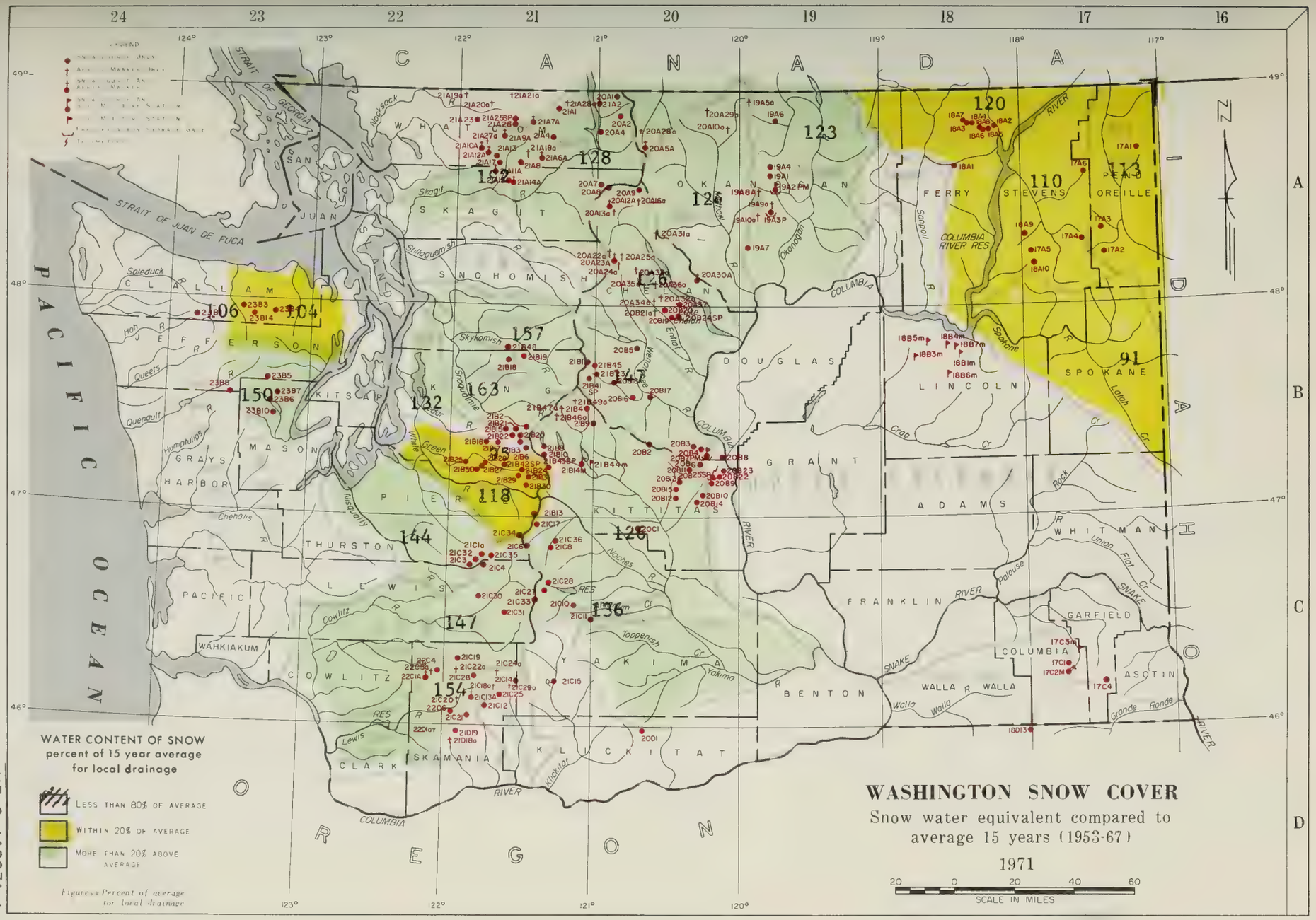

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	23E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B2SSP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lymn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

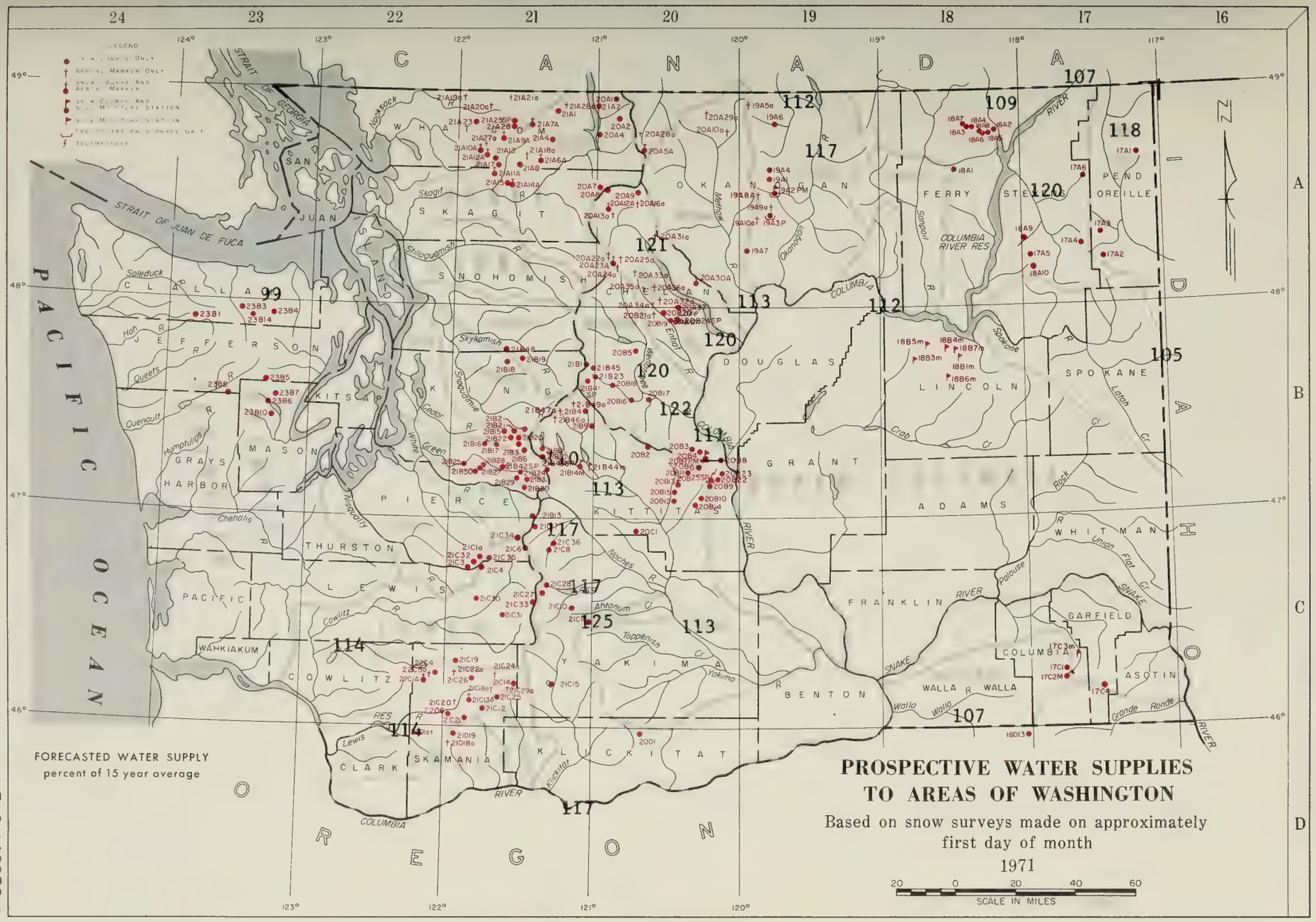
OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow



U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

M7-0-14887B-L

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	23E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B4S	12	26N	19E	3700
Trough #2	20B2SSP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington
March 1, 1971

* *
* The water supply outlook for irrigation and power in the Columbia *
* Basin in Washington and its tributary areas can still be consider- *
* ed very good for this time of year. Snow surveys made on the *
* first of March indicate a snowpack that ranges from a low of 9% *
* below normal to a high of 92% above. Incomplete results were the *
* story over most of the western Washington area due to storm per- *
* iods during the measurement times. Helicopter flights were *
* grounded and many of the snow courses were not measured in time *
* to be included in this report. This information will be publish- *
* ed with the April 1 snow results next month. While most of the *
* snow measurements were obtained prior to the storm period compar- *
* isons of the snowpacks with those measurements made after the *
* storm period are not truly comparable. A truer picture will be *
* obtained on April 1, hopefully, when all snow courses can be *
* measured without additional input of snow from one snow course to *
* the other during the measurement schedule. The snow courses all *
* have less water equivalent, percentagewise, than was reported *
* last month at this time. This is a result of the lack of precip- *
* itation input during the month of February. Valley precipitation *
* stations indicate that only the Columbia Basin in Canada and the *
* northwestern slopes of the Cascades had above-normal precipita- *
* tion input. With the exception of the Conconully reservoir and *
* Salmon Lake, all irrigation reservoirs have above-normal amounts *
* of water in storage as of March 1. Power reservoirs are all in *
* good shape having well above-average amounts of stored waters. *
* This increase in reservoir storage is a result of the above-nor- *
* mal flows during the month of February. Only the Okanogan River, *
* the Palouse River, the Walla Walla River and the Chehalis River *
* had below-normal runoff during the month of February. Of the re- *
* ported streams the Chelan River had the highest percentage runoff, *
* being 159% above normal. *
* *

SNOW COVER

Only two snow courses in the Green River watershed were measured in time for this report and these two indicated the snowpack to be only 95% of normal. If all snow courses had been measured it is assumed that the snow cover in this area would also have been well above normal --approximately 20% above. This is the only watershed in the state that had below-normal snowpacks although the Spokane River in Idaho reported below-normal snow-water equivalent. The range of snow cover was 9% below normal on the above-mentioned Spokane River drainage to a high of 92% above normal on the Baker River. This, generally, is a 20% reduction from that which was reported last month although the overall situation is not as good as that which occurred in 1969. Normal conditions from this date forward will give adequate water supplies in all

areas of the state.

RESERVOIRS

As stated above all reservoirs with the exception of Conconully and Salmon Lake have above-normal amounts of water in storage. While these two reservoirs might not fill with the spring runoff all other reservoirs in the state are expected to waste water before runoff is through.

PRECIPITATION

During the month of February the United States Weather Bureau reported the Columbia drainage division in Canada had a precipitation that was 1% greater than average and the northwest slopes of the Cascades 7% greater. The other drainage divisions were all reported to have below-normal precipitation during the month with a range from 3% below to 31% below. The winter picture from November through February indicates that only northeast and southeast Washington have recorded below-normal amounts of precipitation. Other drainage divisions all report above normal ranging from 5% above to 27% above.

SOIL MOISTURE

The soil moisture situation has not changed markedly from that which was reported last month. There has been some drying of the soil mantle especially at lower elevations and some increase in the soil moisture at the median elevation sites. This is a normal situation and is resulting in near-normal soil mantle conditions as of March 1.

STREAMFLOW

All the major streams in Washington and tributary areas had above-normal runoff during the month of February. This, in spite of the general lack of precipitation. This runoff is a result of the melting of the snowpack at low and median elevation snow courses but even this was not enough to reduce the snow to a dangerous situation. Forecasts of streamflows range from 1% below normal for the Dungeness River near Sequim to 25% above normal for the Ahtanum Creeks as measured near Tampico. Most of the forecasts are in the 10% to 20% above-normal range. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MARCH 1971

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1970 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr Average 1953-67
			COLUMBIA BASIN				
Columbia River System							
Columbia River	49500	107	Apr-Sep	34443	47990	47182	46368
at Birchbank 1/	40500	108	Apr-Jul	27808	40549	37092	37480
	29500	109	Apr-Jun	20918	32212	25280	27040
Columbia River							
at Grand Coulee 1/	77500	112	Apr-Sep	54604	74687	63784	69458
	66000	112	Apr-Jul	46518	65696	51685	58899
	51900	113	Apr-Jun	37541	54604	38183	45889
Columbia River							
bl Rock Island Dam 1/	85000	111	Apr-Sep	59163	80257	70298	76241
	71500	110	Apr-Jul	50711	71039	57403	64770
	57000	113	Apr-Jun	41070	59289	42326	50387
Columbia River							
at The Dalles, OR 1/	123000	117	Apr-Sep	87067	108959	89008	105176
	106000	118	Apr-Jul	75146	96628	72494	90050
	86500	119	Apr-Jun	62267	82719	55499	72410
Pend Oreille River System							
Pend Oreille River							
bl. Box Canyon	18900	118	Apr-Sep	14234	16166	12869	15991
	17400	118	Apr-Jul	13267	15055	11077	14772
	15000	118	Apr-Jun	11627	13033	9471	12746
Kettle River System							
Kettle River							
nr. Laurier	2100	109	Apr-Sep	1123	2239	1851	1918
	2030	111	Apr-Jul	1092	2188	1720	1821
	1860	113	Apr-Jun	1027	2048	1560	1644

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. R. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr Average 1953-67
Kettle River System (Cont.)							
Colville River at Kettle Falls	184	120	Apr-Sep		270	63	153
	170	121	Apr-Jul		256	54	141
	158	121	Apr-Jun		240	50	131
Spokane River System*							
Spokane River at Post Falls ID 2/	3300	105	Apr-Sep	2862		1681	3151
	3200	105	Apr-Jul	2770		1577	3055
	3060	105	Apr-Jun	2627		1487	2913
Okanogan River System**							
Similkameen River nr. Nighthawk	1710	112	Apr-Sep	861	1199	1449	1525
	1600	113	Apr-Jul	820	1150	1359	1419
	1400	117	Apr-Jun	751	1052	1158	1197
Okanogan River nr. Tonasket	2030	117	Apr-Sep	917	1450	1567	1738
	1850	117	Apr-Jul	859	1350	1429	1578
	1580	120	Apr-Jun	781	1230	1202	1318
Methow River System**							
Methow River nr. Pateros	1190	113	Apr-Sep		1060	973	1054
	1110	113	Apr-Jul		1013	906	981
	950	114	Apr-Jun		948	767	834
Chelan River System							
Chelan River at Chelan 3/	1520	120	Apr-Sep	907	1337	1224	1266
	1370	122	Apr-Jul	821	1230	1069	1119
	1050	120	Apr-Jun	689	1093	798	870
Stehekin River at Stehekin	1090	121	Apr-Sep		961	868	904
	925	120	Apr-Jul		853	735	772
	700	119	Apr-Jun		748	535	586

* Forecasts made by Morland W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr. Average 1953-67
Wenatchee River System							
Wenatchee River at Plain	1600	120	Apr-Sep		1443	1163	1333
	1450	120	Apr-Jul		1349	1028	1204
	1150	121	Apr-Jun		1217	812	952
Wenatchee River at Peshastin	2210	122	Apr-Sep	1420	1953	1526	1814
	2000	122	Apr-Jul	1324	1840	1355	1651
	1580	120	Apr-Jun	1138	1669	1087	1316
Stemilt Basin nr. Wenatchee	130*	--	May-Sep		145*	140*	
Yakima River System							
Yakima River nr. Martin 4/	160	110	Apr-Sep	130	156	97	145
	149	111	Apr-Jul	121	144	79	134
	130	112	Apr-Jun	112	136	73	116
Yakima River at Cle Elum 5/	1090	113	Apr-Sep		1051	695	968
	1020	115	Apr-Jul		977	589	885
	880	115	Apr-Jun		912	510	762
Yakima River nr. Parker 6/	2000	113	Apr-Sep		1989	959	1772
	1980	113	Apr-Jul		2005	863	1752
	1820	113	Apr-Jun		1980	826	1608
Kachess River nr. Easton 7/	140	110	Apr-Sep	112	139	76	128
	34	110	Apr-Jul	110	134	66	122
	119	111	Apr-Jun	104	128	62	107
Cle Elum River nr. Roslyn 8/	550	113	Apr-Sep	429	496	358	485
	510	114	Apr-Jul	396	473	311	445
	430	115	Apr-Jun	345	440	264	373
Bumping River nr. Nile 9/	175	117	Apr-Sep	129	150	105	150
	163	118	Apr-Jul	121	142	93	138
	130	115	Apr-Jun	107	133	73	114

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr Average 1953-67
Yakima River System (Cont.)							
American River nr. Nile	150	116	Apr-Sep		138	98	129
	140	116	Apr-Jul		130	88	120
	115	116	Apr-Jun		120	78	99
Tieton River at Tieton Dam 10/	295	117	Apr-Sep	245	273	166	251
	255	118	Apr-Jul	211	244	134	215
	218	118	Apr-Jun	175	220	111	172
Naches River nr. Naches 11/	1250	115	Apr-Sep		994	592	899
	960	117	Apr-Jul		926	511	819
	810	116	Apr-Jun		857	437	698
Ahtanum Creeks nr. Tampico 12/	61	125	Apr-Sep		57	31	49
	56	125	Apr-Jul		53	27	45
	51	127	Apr-Jun		49	24	40
Lower Columbia River System							
Mill Creek nr. Walla Walla	31	107	Apr-Sep		32	15	29
	27	108	Apr-Jul		29	11	25
	24	104	Apr-Jun		27	10	23
Lewis River at Arial 13/	1550	114	Apr-Sep	869	1613	1173	1358
	1390	116	Apr-Jul	775	1431	895	1197
	1230	116	Apr-Jun	704	1303	798	1059
Cowlitz River at Castle Rock 14/	3210	114	Apr-Sep	2079	2965	2381	2813
	2860	115	Apr-Jul	1834	2641	1850	2481
	2410	114	Apr-Jun	1614	2359	1630	2119
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River nr. Sequim	171	99	Apr-Sep		195	134	172
	142	101	Apr-Jul		167	107	141
	109	104	Apr-Jun		139	78	105

10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1971, as per cent of the same date in 1970 and 1969 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1971 Snow Water Expressed as per cent of 1970	1969	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	10 - 17	7 - 34	120	87	113*
Kettle	15	5 - 31	139	79	120*
Colville	5	9 - 12	105	67	110*
Spokane	7 - 8	9 - 26	119	85	91*
Okanogan	23 - 28	4 - 33	147	102	123*
Methow	5	8 - 33	121	76	124*
Chelan	1	17	173	116	126*
Entiat	8 - 9	4 - 10	136	102	--
Wenatchee	8 - 10	3 - 26	116	90	147*
Yakima	19 - 23	3 - 49	103	89	126*
Ahtanum	2	29	88	80	136*
		LOWER COLUMBIA			
Klickitat	1	13	110	98	--
Lewis	8 - 11	8 - 13	209	87	154*
Cowlitz	2	7 - 19	117	100	147*
		PUGET SOUND			
Nisqually	2 - 3	5 - 14	154	130	144*
White	1	19	102	87	118*
Green	1 - 2	9 - 24	135	77	95*
Cedar	5 - 7	10 - 12	243	65	132*
Snoqualmie	2 - 4	2	164	78	163*
Skykomish	2 - 3	3 - 26	143	100	157*
Skagit	2	13 - 23	170	116	128*
Baker	8 - 10	1 - 12	311	128	192*
Nooksack	4	2 - 4	182	120	--
		OLYMPIC PENINSULA			
Skokomish	4 - 5	7 - 13	205	105	150*
Elwha	1	11	161	76	106*
Dungeness	1	17	127	82	104*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (March) 1971	1970	1969	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	154.2	148.1	85.0	149.4
Columbia	Franklin D. Roosevelt Lake	5232.0	4666.2	3464.7	141.2	2985.2
Columbia	Banks Lake	761.8	712.2	605.4	720.3	511.7
Okanogan	Conconully Reservoir	13.0	5.8	7.4	4.7	6.1
Okanogan	Salmon Lake	10.5	2.1	7.6	6.3	8.5
Chelan	Lake Chelan	676.1	257.0	96.7	166.2	243.7
		YAKIMA				
Yakima	Keechelus Lake	157.8	123.0	59.6	96.5	99.0
Kachess	Kachess Lake	239.0	201.1	169.6	183.8	178.5
Cle Elum	Lake Cle Elum	436.9	231.3	171.8	262.9	266.0
Bumping	Bumping Lake	33.7	5.2	7.2	2.8	11.0
Tieton	Rimrock Lake	198.0	122.9	89.0	149.2	124.1
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	912.7	725.1	616.9	851.6
Skagit	Diablo Reservoir	90.6	83.4	85.3	87.8	85.9
Skagit	Gorge Reservoir	9.8	8.3	8.3	8.1	--

1/ Based on active storage

* 15-year average 1953-67

SOIL MOISTURE - MARCH

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity	Soil Moisture Content (Inches) as of Mar. 1 1971	1970	1969
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	9.8	9.4	7.9
Krause	18B4m	2440	48	13.6	6.2	9.0	8.1
Sheffels	18B5m	2360	48	13.6	7.7	8.4	5.8
Sherman	18B7m	2440	48	13.6	7.8	8.9	6.1
Wheatridge	18B6m	2200	48	13.6	10.5	9.8	7.0
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	3.6	2.4	3.0
Trout Creek	3-M	3600	48	7.3	3.2*	3.3*	3.3
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	5.0	6.0	--
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2	--
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.1	10.5	10.4
Helmers	17C2M	4400	48	12.0	10.7	10.9	10.6
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	10.1	7.1	8.9

* Feb 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.0	7.5	7.1
Krause	18B4m	2440	48	13.6	4.4	5.9	5.2
Sheffels	18B5m	2360	48	13.6	4.4	4.5	4.9
Sherman	18B7m	2400	48	13.6	3.8	4.2	3.9
Wheatridge	18B6m	2200	48	13.6	7.8	5.4	4.6
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	1.7	2.7	2.7
Trout Creek	3-M	3600	48	7.3	3.4*	3.8*	4.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	2.4	--	3.1
Lake Cle Elum	21B14M	2200	48	12.8	7.6	--	5.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	5.9	6.1	7.4
Helmers	17C2M	4400	48	12.0	7.3	7.1	7.6
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	5.1	9.8	5.5

* Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

Drainage Divisions	FALL Sep - Oct Average	FALL 1970 2/ Departure	WINTER Nov - 1970 - Feb - 1971 2/ Average	WINTER Departure
Columbia in Canada	3.64	-0.25	13.42	+2.23
Pend Oreille - Spokane	4.30	+0.42	16.24	+0.76
Northeastern Washington	3.16	+0.91	9.03	-0.42
Southeastern Washington	3.59	+0.94	9.55	-0.79
Central Washington	3.05	-1.39	27.27	+3.59
North Central Washington	1.36	-0.05	7.04	+1.50
Northwest Slope Cascades	12.29	+0.62	50.92	+6.41
Southwest Slope Cascades	7.74	+0.02	42.18	+7.69

Northeastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

Southeastern Washington - Touchet, Tucannon and Palouse drainages.

Central Washington - Yakima, Wenatchee and Chelan drainages.

North Central Washington - Methow and Okanogan drainages.

Northwest Slope Cascades - Puget Sound drainages.

Southwest Slope Cascades - Lower Columbia drainages.

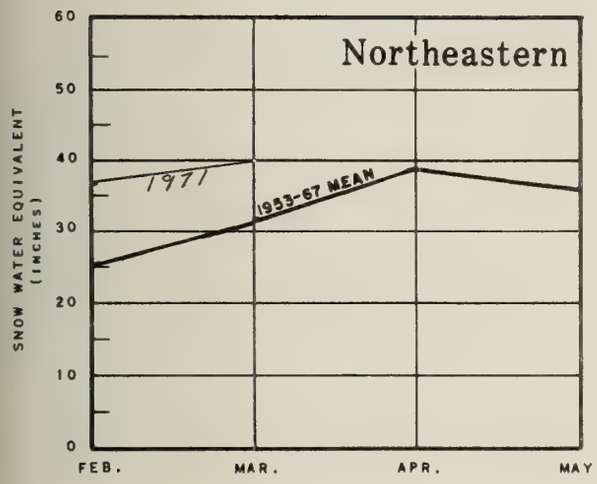
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau.

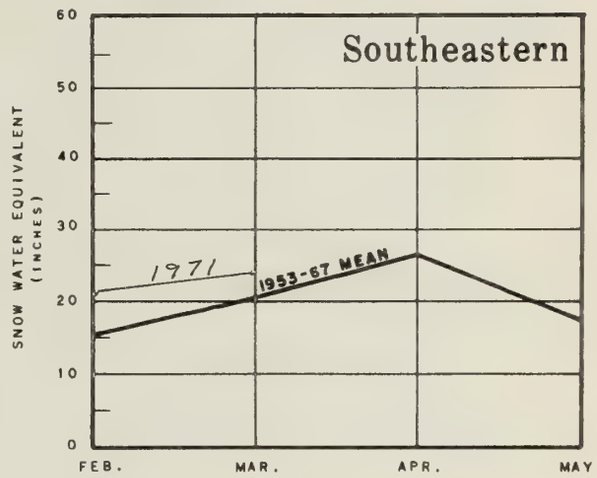
2/ - Departure from 15-year (1953-67) drainage division average.

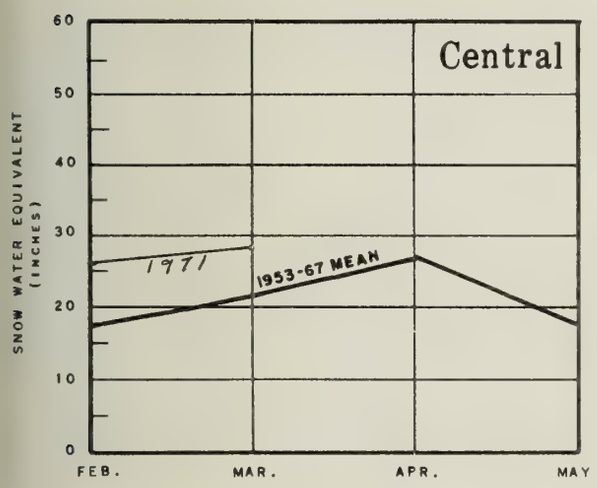
WASHINGTON SNOW COVER

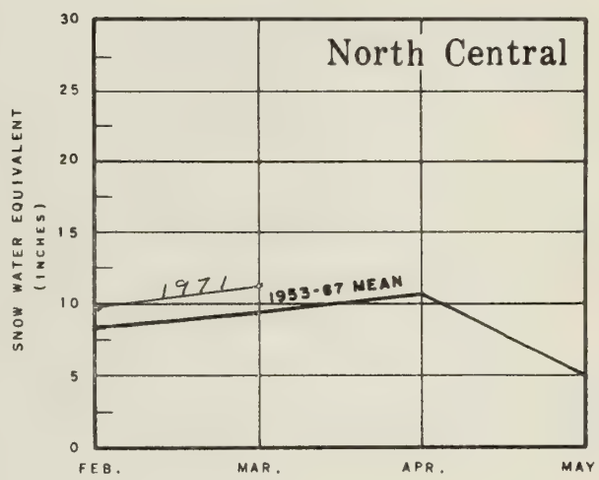
1971

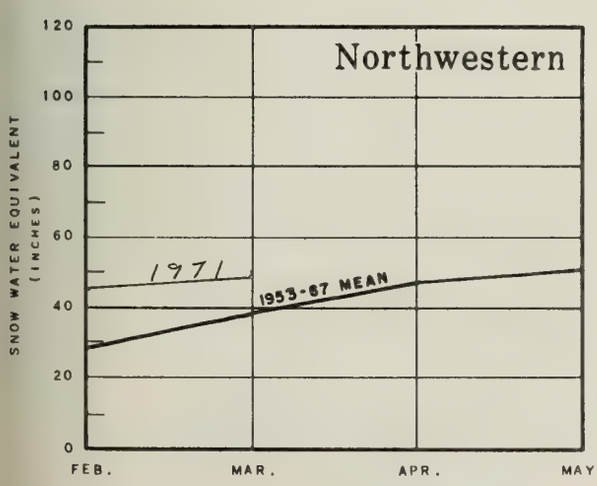
DRAINAGE AREAS

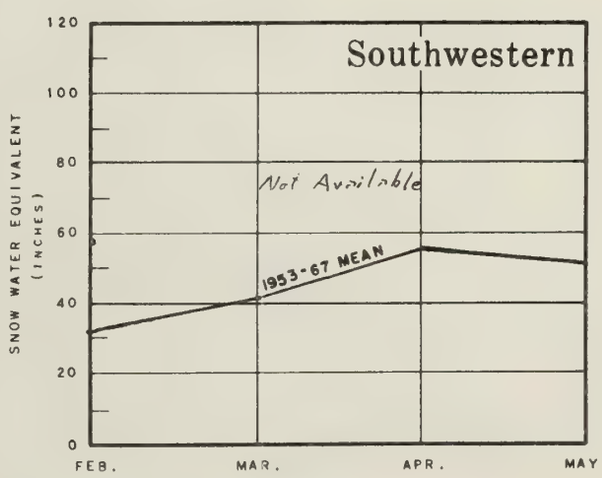










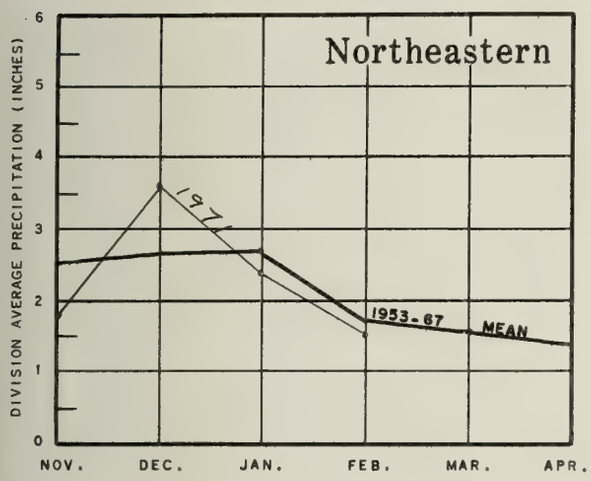


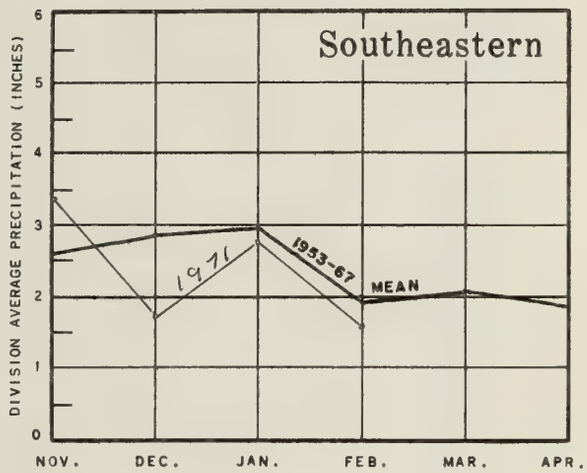
Selected Snow Survey Courses by Soil Conservation Service

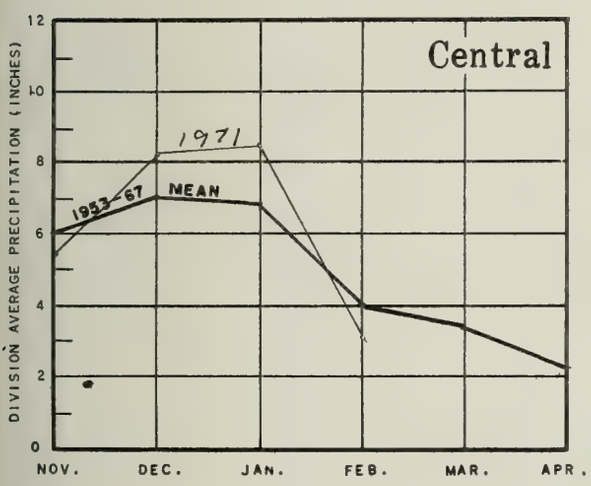
WASHINGTON VALLEY PRECIPITATION

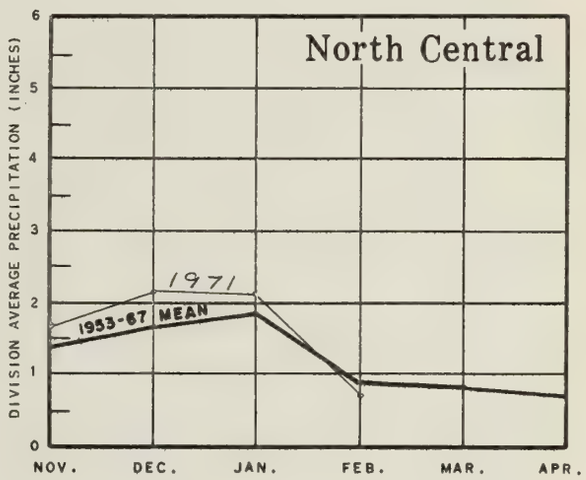
1970-1971

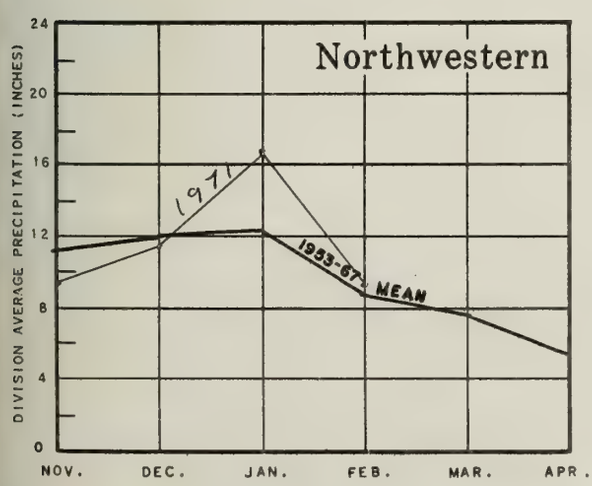
DRAINAGE AREAS

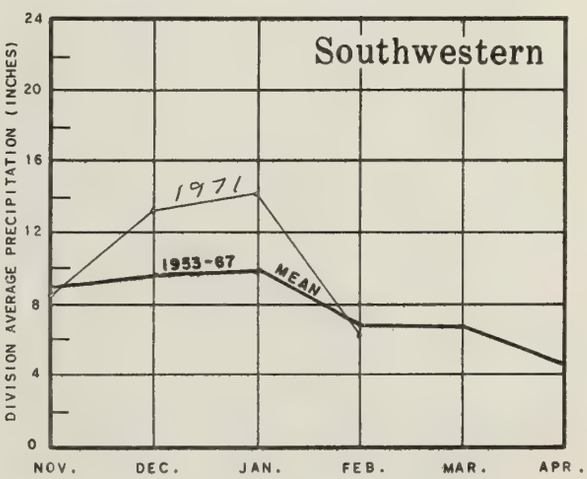












Preliminary Analysis by U. S. Weather Bureau

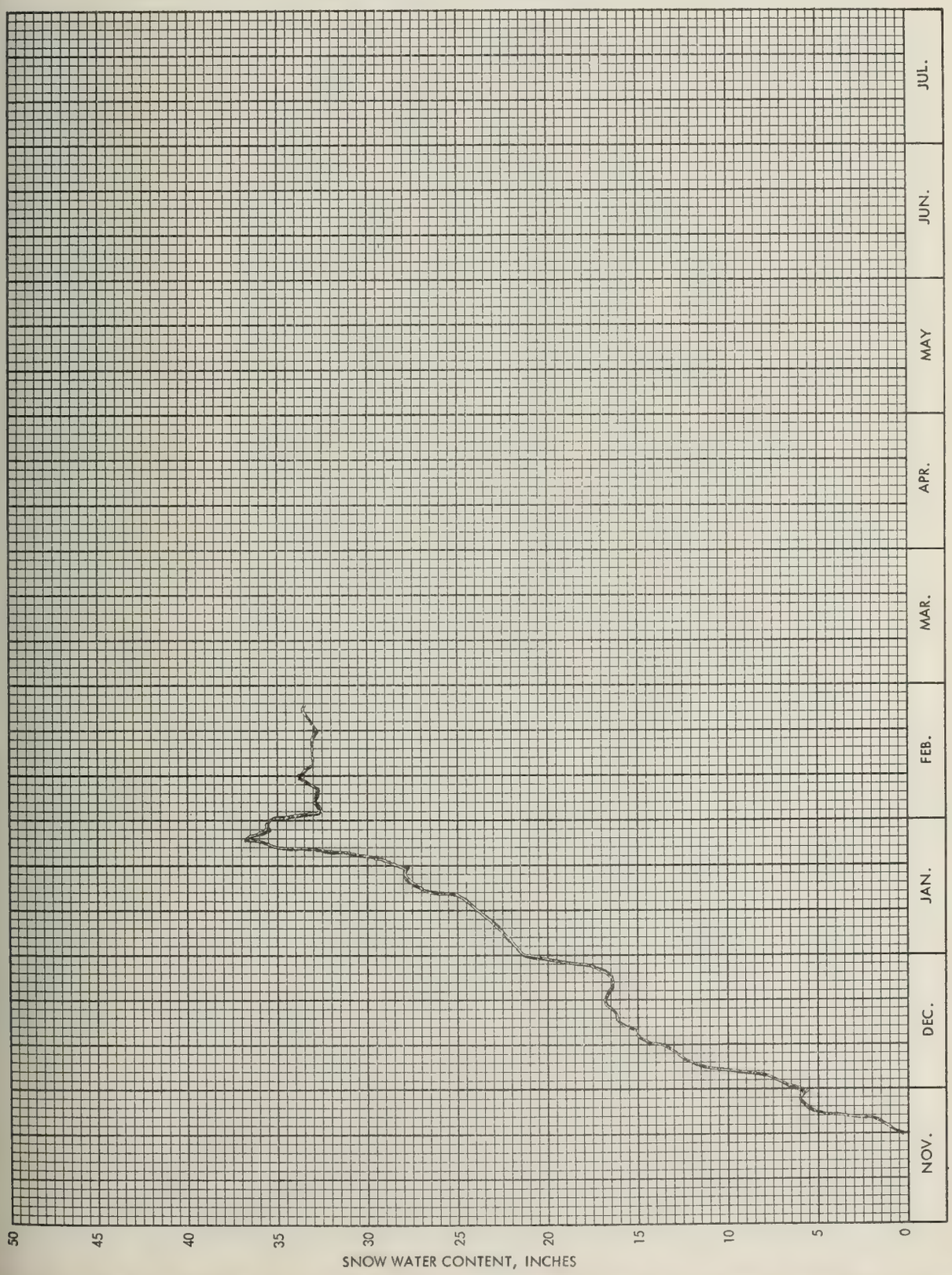
SNOW PILLOW DATA

Berne-Mill Creek

1970-71

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River

Lat. 47° 46' Long. 121° 01' Elev. 3270'



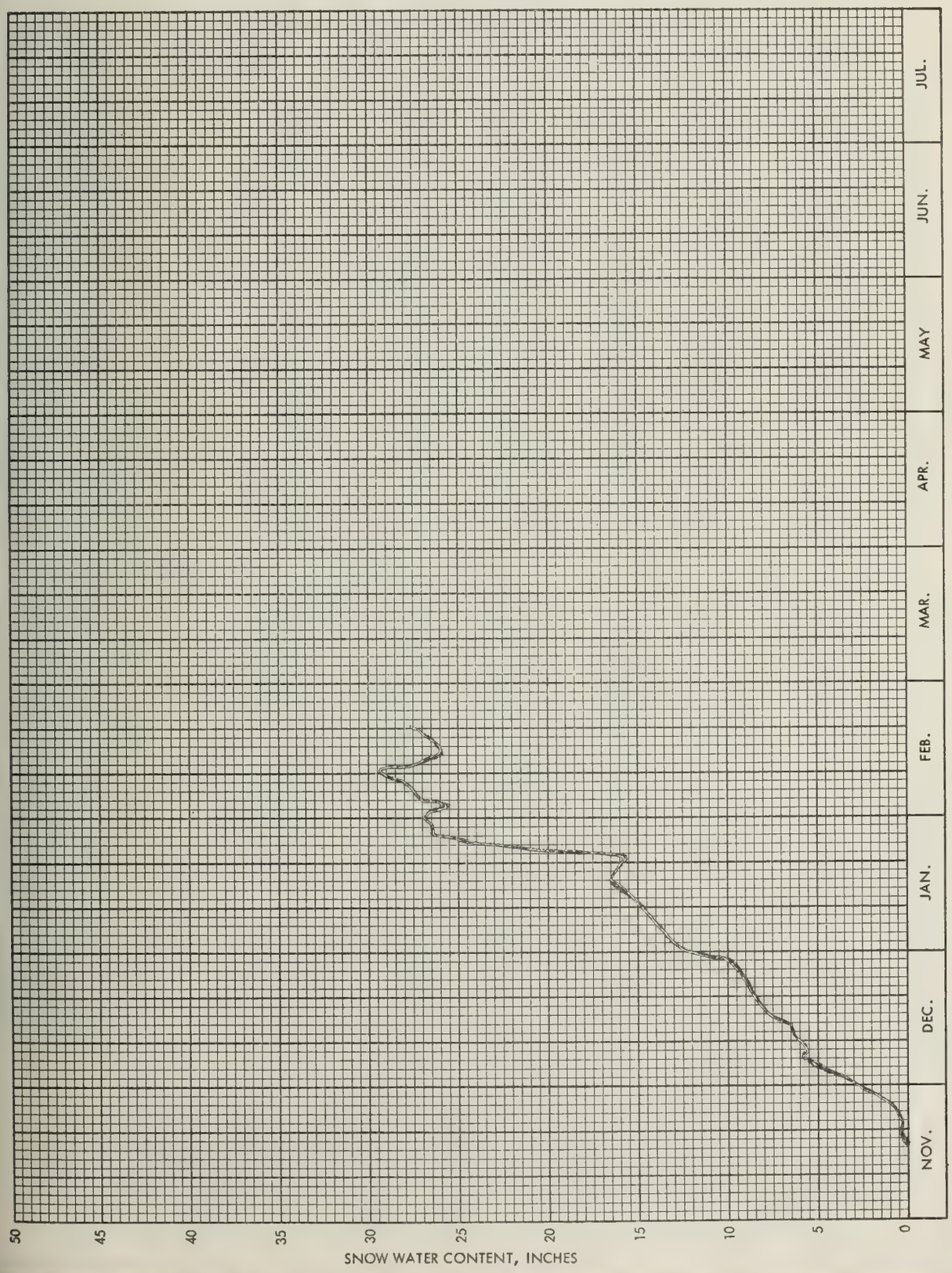
SNOW PILLOW DATA

Cougar Mountain - FS

1970-71

Sec. 28 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



SFB-X4-N

APPENDIX 1

SNOW DATA FEBRUARY 1 to MARCH 1, 1971

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	2/28	120	48.0	37.6	--
Baree Midway	15B16	4600	2/28	97	38.8	31.3	--
Baree Trail	15B15	3800	2/28	36	13.0	12.0	--
Benton Meadow	16A2	2344	2/26	19	7.1	8.8	5.8
Benton Spring	16A3	4900	2/26	50	16.3	19.0	18.2
Boyer Mountain	17A2	5250	2/25	71	27.6	22.8	23.4
Brush Creek	14A4	5000	2/24	37	11.4	10.0	11.7
#Chewelah	17A4	4925	2/27	46	14.9	14.1	16.5
Heart Lake Trail	14C10	4800	2/26	80	28.4	15.8	20.2*
Hoodo Basin	15C10	4800	2/26	149	56.2	39.3	--
Hoodo Creek	15C1	6200	2/26	141	51.6	37.7	42.9*
Lookout	15B2	5250	2/26	108	40.0	31.9	32.3
Mosquito Ridge +	16A4A	5100	3/2	111	41.1	38.4	33.8*
Nelson	Canada	3050	2/26	46	14.6	12.1	14.4**
Schweitzer Bowl	16A6	4500	2/25	80	31.3	25.7	--
Schweitzer Ridge	16A5	6100	2/25	112	43.3	33.5	--
Winchester Creek	17A3	2970	2/25	39	13.9	13.3	11.5*
KETTLE RIVER							
Barnes Creek	Canada	5500	2/26	62	19.8	11.3	17.1**
Big White Mountain	Canada	5500	2/28	66	16.2	12.5	18.2**
Boulder Road	18A2	1450	2/10	22	7.3	4.3	4.3*
			2/23	22	7.0	4.0	3.5*
Butte Creek	18A3	4070	2/10	29	8.6	6.7	8.1*
			2/23	31	9.3	8.3	8.7*
Cabin Creek	18A8	3170	2/10	28	7.8	6.3	7.5*
			2/23	31	8.7	7.7	7.7*
Carmi	Canada	4100	2/28	22	6.8	5.3	5.8**
Farron	Canada	4000	2/26	42	13.7	10.7	12.3**
Goat Creek	18A4	3595	2/10	25	8.2	6.6	6.9*
			2/23	24	7.6	6.9	6.6*
#Lower Esperon Cr.	Canada	4270	3/1	49	13.3	8.4	--
Lower Trapping Cr.	Canada	3050	2/28	20	5.9	4.0	4.9**
#Middle Esperon Cr.	Canada	4580	3/1	63	17.9	11.0	--
#Monashee Pass	Canada	4500	2/26	44	12.9	7.3	12.6**
Old Glory Mountain	Canada	7000	2/27	82	27.8	17.1	24.3**
Snow Caps Creek	18A5	2150	2/10	21	6.8	5.0	4.6*
			2/23	22	7.0	4.5	4.2*

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

APPENDIX 2

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
KETTLE RIVER (Cont.)							
Snow Caps Trail	18A6	2720	2/10	24	7.2	5.2	6.1*
			2/23	25	8.1	6.4	6.1*
Summit G. S.	18A7	4600	2/10	23	6.3	5.7	8.0*
			2/23	25	6.9	6.6	8.3*
#Upper Esperon Cr.	Canada	5290	3/1	74	21.9	12.8	--
Upper Trapping Cr.	Canada	5500	2/28	37	9.5	6.5	8.3**
COLVILLE RIVER							
Baird	17A6	3215	2/28	23	5.5	7.6	7.0*
Carlson	18A9	2885	2/28	17	4.2	5.0	4.8*
Chewelah	17A4	4925	2/27	46	14.9	14.1	16.5*
Stranger Mountain	17A5	4990	2/27	56	17.0	13.7	12.4*
Togo	18A10	3370	2/28	49	14.6	10.4	9.4*
SPOKANE RIVER							
Above Burke	15B8	4100	2/26	79	28.6	17.1	--
Copper Ridge	16B2	4800	3/1	75	28.4	24.8	26.0
Forty-nine Meadows +	15B3	5000	3/2	93	32.8	24.2	28.6*
Fourth of July Summit	16B3	3100	2/26	31	8.1	9.5	10.5*
Granite Peak +	15B13A	6000	3/2	134	41.3	33.2	41.8*
#Lookout	15B2	5250	2/26	108	40.0	31.9	32.3
Lost Lake +	15B14A	6000	3/2	165	56.4	46.6	53.6*
Lower Sands Creek	16B1	3400	2/25	63	19.5	17.6	17.8
Medicine Ridge +	15B4A	6150	3/2	139	43.2	34.0	43.6*
#Mosquito Ridge +	16A4A	5110	3/2	111	41.1	38.4	33.8
Outlaw Creek +	15B12A	3750	3/2	60	16.9	11.2	13.7*
Roland Summit +	15B5A	5200	3/2	94	34.8	29.7	34.6*
Sherwin	16C1	3200	3/1	43	13.4	11.1	14.1*
Sunset +	15B9A	5600	Not Measured			30.4	29.9*
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	2/26	22	4.3	5.6	6.0**
Blackwall Peak	Canada	6250	2/26	108	42.4	23.6	30.5**
Bouleau Creek	Canada	5000	2/25	41	13.0	8.9	10.0**
Bouleau Lake	Canada		2/27	57	13.5	New Course	
Brenda Mine	Canada	4800	2/26	47	14.1	9.2	--
Brookmere	Canada	3200	2/28	41	13.2	7.7	8.9**

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
Carrs Landing Lower	Canada	2250	3/1	5	1.0	1.7	1.6**
Carrs Landing Upper	Canada	3200	Late Report			5.2	4.4**
Clark +	19A8a	7000	2/26	63	22.7	--	--
Copper Mountain	Canada	4300	Late Report			6.1	5.9**
Enderby	Canada	6250	2/25	122	37.0	27.4	31.8**
#Freezeout Meadows	20A2	5000	Late Report			19.3	28.2
Hamilton Hill	Canada	4900	Late Report			12.7	13.3**
#Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
#Horseshoe Basin +	19A5a	7000	2/28	54	21.6	--	11.6*
Isintok Lake	Canada	5510	2/27	32	8.2	4.9	6.6**
Lost Horse Mountain	Canada	6300	3/1	42	9.6	4.8	7.5**
#Loup Loup	19A7	4650	3/1	44	12.0	9.9	8.9*
Lower Esperon Creek	Canada	4270	3/1	49	13.3	8.4	--
McCulloch	Canada	4200	2/25	29	7.1	5.0	6.3**
Middle Esperon Creek	Canada	4580	3/1	63	17.9	11.0	--
Missezula Mountain	Canada	5100	Late Report			6.2	8.5**
Mission Creek	Canada	6000	2/27	71	22.9	11.1	16.7**
Monashee Pass	Canada	4500	2/26	44	12.9	7.3	12.6**
Mount Kobau	Canada	5950	2/26	41	13.3	10.8	11.9**
Muckamuck +	19A9a	6390	2/26	53	19.1	--	--
Mutton Creek No. 1	19A1	5700	2/24	43	15.9	12.0	12.3
Mutton Creek No. 2	19A4	6000	2/24	48	16.6	12.2	12.7
New Copper Mountain	Canada	4300	Late Report			6.8	5.5**
New Penticton Res.	Canada	6200	2/25	43	7.2	--	--
Nickel Plate Mtn.	Canada	6200	3/1	42	11.9	5.6	6.7**
Paysayten +	20A28a	4300	Not Measured			14.1	--
			3/1	58	23.2	16.3	14.2*
Postill Lake	Canada	4500	2/26	34	8.2	6.6	7.3**
Rusty Creek	19A3	4000	2/24	20	7.5	7.3	7.0
Salmon Meadows	19A2	4500	2/24	35	11.2	9.8	9.7
Silver Star Mountain	Canada	6050	3/2	82	29.2	18.1	22.6**
Starvation Mountain +	19A10a	6750	2/26	57	20.5	--	--
Summerland Res.	Canada	4200	2/28	39	10.8	6.7	8.2**
Touts Coulee	19A6	2845	2/25	17	5.2	4.3	3.7*
Trout Creek	Canada	4700	2/26	37	8.4	5.5	6.3**
Upper Esperon Creek	Canada	5290	3/1	74	21.9	12.8	--
White Rocks Mtn.	Canada	6000	2/25	77	24.7	15.3	17.9**

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APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	2/28	123	49.2	26.9	25.8*
Dollar Watch +	20A29a	7000	2/28	81	32.4	26.5	23.7*
Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
Horseshoe Basin +	19A5a	7000	2/28	54	21.6	14.6	11.6*
Loup Loup	19A7	4650	3/1	44	12.0	9.9	8.9*
#Mutton Creek No. 1	19A1	5700	2/24	43	15.9	12.0	12.3
#Mutton Creek No. 2	19A4	6000	2/24	48	16.6	12.2	12.7
#Rusty Creek	19A3	4000	2/24	20	7.5	7.3	7.0
#Salmon Meadows	19A2	4500	2/24	35	11.2	9.8	9.7
#War Creek Pass +	20A31a	6500	3/1	150	60.0	25.8	--
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	3/1	122	48.8	25.5	34.9*
Greenwood Flat +	20A25a	3540	Marker down			--	--
Little Meadows +	20A24a	5275	3/1	129	51.6	33.0	37.5*
Lyman Lake +	20A23A	5900	3/1	181	72.4	36.4	50.3*
Park Creek Flat +	20A13a	2220	3/1	100	40.0	25.8	31.0*
Park Creek Ridge	20A12A	4600	3/1	137	54.8	32.0	41.7*
Petersons +	20A16a	3730	3/1	108	43.2	25.2	32.5*
Rainy Pass	20A9	4780	3/1	118	46.8	27.0	37.0
Safety Harbor	20A30A	6300	3/1	98	39.2	16.3	--
War Creek Pass +	20A31a	6500	3/1	150	60.0	25.8	--
ENTIAT RIVER							
Brief	20B19	1600	2/26	28	10.0	10.0	6.3*
Entiat Meadows +	20A33a	4800	3/1	142	51.1	34.0	--
Entiat River Tr. +	20A34a	3150	3/1	60	24.2	19.7	--
Fox Camp +	20A36a	6510	3/1	158	56.9	44.2	--
Pope Ridge	20B20	4300	2/24	54	21.6	16.8	--
Pugh Ridge +	20A32a	6400	3/1	109	39.2	34.0	--
Shady Pass	20A37	5000	2/25	88	32.0	19.0	--
Snow Brushy +	20A35a	3850	3/1	129	46.4	30.7	--
Tommy Creek +	20B21a	5300	3/1	97	34.6	23.1	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	2/16	78	33.7	25.5	24.0*
			2/26	88	34.4	28.3	23.9*
Berne-Mill Creek New	21B41SP	3240	2/26	72	32.8	28.6	--

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APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
WENATCHEE RIVER (Cont.)							
Blewett Pass No. 2	20B2	4270	2/26	48	19.4	19.1	13.8
Chiwaukum G. S.	20B16	1810	2/16	41	15.5	14.2	10.5*
			2/26	43	16.1	16.2	10.5*
#Fish Lake	21B4	3371	2/24	100	46.4	31.1	31.7*
Lake Wenatchee	20B5	1970	2/16	44	19.3	14.1	13.0*
			2/26	46	18.8	14.7	13.4*
Leavenworth R. S.	20B17	1127	2/12	18	6.7	9.5	4.3*
			2/26	10	4.5	7.3	2.6*
#Lyman Lake	20A23A	5900	3/1	181	72.4	36.4	50.3*
Merritt	20B18	2140	2/16	42	19.2	17.4	14.6*
			2/26	47	19.1	17.8	13.7*
Stevens Pass	21B1	4070	2/16	133	58.7	42.0	40.3
			2/26	152	62.1	43.9	44.4
Stevens P. Sand Shed	21B45	3700	2/16	93	41.0	29.6	--
			2/26	106	43.3	32.6	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	2/25	14	5.7	12.3	6.5*
Scout-A-Vista	20B4	3400	3/1	28	8.8	11.7	7.0*
STEMILT CREEK							
Jump-Off	20B8	4450	2/26	20	7.0	12.4	6.8*
Stemilt Slide	20B6	5000	2/26	37	14.1	14.4	12.6*
Upper Wheeler	20B7	4400	2/26	24	9.1	13.6	8.5*
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	2/24	28	11.0	16.8	--
Colockum Creek Lower	20B23	4300	2/24	26	8.9	13.8	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	2/24	19	7.1	11.2	5.9*
Big Boulder Creek	21B9	3200	2/24	62	26.7	23.0	18.5*
#Blewett Pass No. 2	20B2	4270	2/26	48	19.4	19.1	13.8
Bumping Lake	21C8	3450	2/12	45	21.2	25.1	15.1*
			3/1	54	22.8	25.2	15.3
Bumping Lake New	21C36	3400	2/12	57	25.6	28.2	--
			3/1	63	26.4	27.9	--

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USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
#Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Colockum Pass	20B9	5370	2/25	50	17.4	19.7	14.9*
Cooke Creek	20B10	4123	2/25	24	7.5	10.0	5.6*
#Corral Pass	21C13	6000	3/1	124	45.8	30.7	33.2*
Fish Lake	21B4	3371	2/24	100	46.4	31.1	31.7*
Green Lake	21C10	6000	2/24	100	38.8	34.3	25.7*
Grouse Camp	20B11	5385	2/26	42	15.5	19.5	16.1*
High Creek	20B12	2930	2/26	24	8.4	8.0	5.1*
Joe Lake	21B46a	4624	Marker down			55.9	--
Lake Cle Elum	21B14M	2200	2/12	11	4.4	12.1	8.5*
			2/28	14	4.7	12.2	8.5*
Lemah Creek +	21B47a	3327	3/1	115	49.4	45.6	--
Manashtash	20C1	3935	2/24	12	3.8	9.6	4.0*
Morse Lake	21C17	5400	2/25	158	55.6	54.5	47.0*
Nanum	21B39	2340	2/26	36	10.6	12.8	9.8*
#Olallie Meadows	21B2	3625	2/20	137	61.6	37.3	40.4
#Satus Pass	20D1	4030	2/25	37	14.1	12.8	--
#Stampede Pass	21B10	3000	2/15	114	35.2	37.6	34.8
			2/28	132	36.3	33.6	38.4
Trail Creek	20B14	3360	2/25	0	0.0	0.0	--
Tunnel Avenue	21B8	2450	2/16	62	25.8	19.0	20.2*
			2/28	76	28.9	21.8	21.6
Van Epps Pass	20B26a	5925	3/1	147	63.2	New Marker	
Walters Flat	20B15	3360	2/26	26	8.6	9.8	6.6*
Waptus Lake +	21B49a	3024	3/1	126	54.2	30.6	--
White Pass (E. Side)	21C28	4500	2/17	68	30.0	21.7	21.5*
			3/2	80	32.3	24.1	21.1*
White Pass (L. Lake)	21C27	4500	2/17	76	34.8	26.2	22.6*
			2/24	73	29.8	30.3	26.1*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	2/24	19	7.1	11.2	5.9*
#Green Lake	21C10	6000	2/24	100	38.8	34.3	25.7*
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	2/22	55	20.7	23.9	--

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APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
MILL CREEK							
Homestead	17C1	4030	2/25	14	5.0	5.2	7.4*
Martin Springs	17C2	4400	2/25	27	10.4	11.6	12.5*
Tollgate	18D3M	5070	2/25	57	22.8	26.2	21.0
KLICKITAT RIVER							
Satus Pass	20D1	4030	2/25	37	14.1	12.8	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	Late Report			35.4	38.9*
#Surprise Lakes	21C13A	4250	Late Report			39.8	42.0
WIND RIVER							
#Old Man Pass	21D19	3100	Late Report			9.6	15.8*
LEWIS RIVER							
Blue Lake +	21C22a	4800	3/1	238	90.4	76.6	70.4*
Bob's Trail	21C21	2200	2/24	57	22.7	5.6	12.4*
Calamity Ridge +	22D1a	2500	3/1	47	16.4	0.0	--
Council Pass +	21C18a	4200	3/1	136	54.9	31.9	34.8*
#Cultus Creek	21C12	4000	Late Report			35.4	38.9*
Divide Meadow +	21C29a	5600	Late Report			43.3	47.7*
Grand Meadow	21C25	3500	2/25	84	31.2	19.2	22.9*
Lone Pine Shelter	21C26	3800	Late Report			26.9	31.4*
Marble Mountain +	22C5a	3200	3/1	140	57.4	12.0	--
#Mosquito Meadows	21C19	4100	Late Report			27.7	34.4*
New Muddy River	22C6	2200	2/24	33	14.7	0.0	--
Old Man Pass	21D19	3100	Late Report			9.6	15.8*
Plains of Abraham +	22C1a	4400	3/1	202	78.8	78.8	55.7*
Smith Creek Road	22C4	2100	2/24	59	27.2	13.2	13.9*
Spencer Meadow +	21C20a	3400	Late Report			9.6	20.5*
Surprise Lakes	21C13A	4250	Late Report			39.8	42.0
Table Mountain +	21C24a	4200	3/1	153	59.7	38.8	40.6*
Timbered Peak +	21D18a	3000	3/1	58	23.0	2.5	16.4*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Mosquito Meadows	21C19	4100	Late Report			27.7	34.4*

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USDA-SCS-PORTLAND, OREG. 1970

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
COWLITZ RIVER (Cont.)							
Ohanapecosh	21C32	2200	2/24	63	28.0	10.5	14.8*
Packwood Lake	21C31	2870	3/3	60	22.1	6.2	12.0*
Pigtail Peak	21C33	5900	2/17	154	68.3	43.1	--
			2/25	174	69.7	44.3	--
#Plains of Abraham +	22C1a	4400	3/1	202	78.8	78.8	55.7*
Potato Hill	21C14	4500	Late Report			27.6	25.7
#White Pass (E. Side)	21C28	4500	2/17	68	30.0	21.7	21.5*
			3/2	80	32.3	24.1	21.1*
#White Pass (L. Lake)	21C27	4500	2/17	76	34.8	26.2	22.6*
			2/24	73	29.8	30.3	26.1*
Willame Creek	21C30	3250	3/1	107	42.4	18.0	27.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	2/26	149	56.0	33.3	38.8*
Longmire	21C3	2760	2/24	45	21.2	4.2	8.4*
New Paradise Park	21C35	5500	2/26	196	82.0	59.8	--
Stem Glade	21C1	5050	3/1	209	85.3	54.3	59.4*
WHITE RIVER							
#Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Corral Pass	21C13	6000	3/1	124	45.8	30.7	33.2*
#Morse Lake	21C17	5400	2/25	158	55.6	54.5	47.0*
GREEN RIVER							
Airstrip	21B24	1800	Late Report			0.0	--
Charley Creek	21B25	1200	Late Report			0.0	--
Cougar Mountain SP	21B42SP	3200	2/20	63	27.0	--	--
Grass Mountain No. 2	21B27	2900	Late Report			15.1	18.1*
Grass Mountain No. 3	21B28	2100	Late Report			0.0	--
Lester Creek	21B29	3100	Late Report			18.0	20.7*
Lynn Lake	21B50	4000	Late Report			11.1	--
Sawmill Ridge	21B29	4700	Late Report			24.6	36.5*
Snowshoe Butte SP	21B43SP	5000	2/20	148	64.0	39.4	--

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SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
GREEN RIVER (Cont.)							
Stampede Pass	21B10	3000	2/15	114	35.2	37.6	34.8
			2/28	132	36.3	33.6	38.4
Twin Camp	21B30	4100	Late Report			11.1	--
CEDAR RIVER							
City Cabin	21B3	2390	2/24	54	23.9	11.1	14.8*
Mt. Gardner	21B21	3300	2/24	56	23.6	7.4	15.4*
Mt. Lindsay	21B16	2500	2/27	68	22.0	8.4	12.9*
Mt. Washington	21B15	3000	2/24	24	8.4	0.0	7.2*
Rex River	21B17	2400	2/27	19	2.8	0.0	12.1*
S. F. Cedar	21B6	3000	2/24	65	28.7	10.1	19.2*
Tinkham Creek	21B20	3400	2/24	73	31.3	22.8	20.6*
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	2/26	147	49.6	28.6	--
#Lake Elizabeth	21B19	2900	2/25	138	57.6	37.5	33.1*
Olallie Meadows	21B2	3625	2/20	137	61.6	37.3	40.4
S. F. Tolt	21B18	1900	2/26	12	2.5	0.0	--
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	2/25	138	57.6	37.5	33.1*
#Stevens Pass	21B1	4070	2/16	133	58.7	42.0	40.3
			2/26	152	62.1	43.9	44.4
#Stevens Pass Sand Shed	21B45	3700	2/16	93	41.0	29.6	--
			2/26	106	43.3	32.6	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	Late Report			8.3	14.0*
Beaver Pass	21A4	2200	3/1	100	37.1	23.9	29.3*
Brown Top Ridge +	21A28a	6000	3/1	167	68.4	40.2	--
#Cloudy Pass +	20A22a	6500	3/1	122	48.8	25.5	34.9*
Devils Park	20A4	5900	3/1	116	45.5	28.6	39.1
Freezeout Cr. Trail	20A1	3500	2/5	48	17.9	9.4	--
			Late Report			10.0	12.6
Freezeout Meadows	20A2	5000	2/5	86	31.3	17.1	--
			Late Report			19.3	28.2

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SKAGIT RIVER (Cont.)							
#Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
Klesilkwa	Canada	3700	2/28	53	18.8	6.7	12.2**
Lake Hozomeen	21A2	2600	2/5	53	17.7	--	--
			Late Report			6.9	9.0*
#Lyman Lake +	20A23A	5900	3/1	181	72.4	36.4	50.3*
Meadow Cabins	20A8	1900	3/1	32	10.4	3.9	7.2*
New Tashme	Canada	2500	2/28	39	15.0	8.3	10.8**
#Rainy Pass	20A9	4780	3/1	118	46.8	27.0	37.0
Thunder Basin	20A7	4200	3/1	65	24.2	16.4	20.5*
BAKER RIVER							
Baker Pass	21A27a	4900	Missing			55.4	--
Dock Butte +	21A11A	3800	2/28	210	100.8	45.3	65.3*
Easy Pass +	21A7A	5200	2/28	180	86.4	48.4	82.1*
Jasper Pass +	21A6A	5400	2/28	238	114.2	61.6	87.3*
Marten Lake +	21A9A	3600	2/28	192	92.2	49.7	73.3*
Mount Blum +	21A18a	5800	2/28	143	68.6	44.0	--
#Panorama New	21A26	4300	3/1	171	78.7	47.8	--
Rocky Creek +	21A12A	2100	2/28	119	57.1	4.4	23.3*
Schreibers Meadow +	21A10A	3400	2/28	168	80.6	40.5	58.1*
S. F. Thunder Creek +	21A14A	2200	2/28	46	22.1	0.0	4.5*
Watson Lakes +	21A8A	4500	2/28	184	88.3	41.4	61.3*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	2/28	135	60.8	32.0	--
Canyon +	21A20a	5100	2/28	167	75.2	35.9	--
Glacier Creek	21A23	3700	Late Report			12.5	--
Panorama New	21A26	4300	3/1	171	78.7	47.8	--
Twin Lakes +	21A21a	5200	2/28	200	90.0	55.0	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	2/24	57	21.6	17.0	20.8
MORSE CREEK							
Cox Valley	23B14	4500	2/28	132	42.6	29.8	--

\+ Snow water equivalent estimated from aerial stadia observations
\# Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
ELWHA RIVER							
Hurricane	23B3	4500	2/25	74	23.0	14.3	21.8*
SKOKOMISH RIVER							
Black & White	23B7	4200	3/1	134	53.6	24.6	32.3*
Black & White Lakes	23B6	4700	3/1	163	68.2	45.8	49.4*
Four Streams	23B10	3000	3/1	110	44.1	13.7	--
Home Sweet Home	23B5	5200	3/1	206	82.4	52.9	64.2*
Sundown Pass	23B8	3900	3/1	190	75.2	41.7	45.4*

* Adjusted 1953-67 average

+ 1953-1967 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
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"The Conservation of Water begins with the Snow Survey"

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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
APR. 1, 1971

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbis Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Cente Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA-SCS-PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

JOHN A. BIGGS
DIRECTOR
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STATE OF WASHINGTON

Report prepared by

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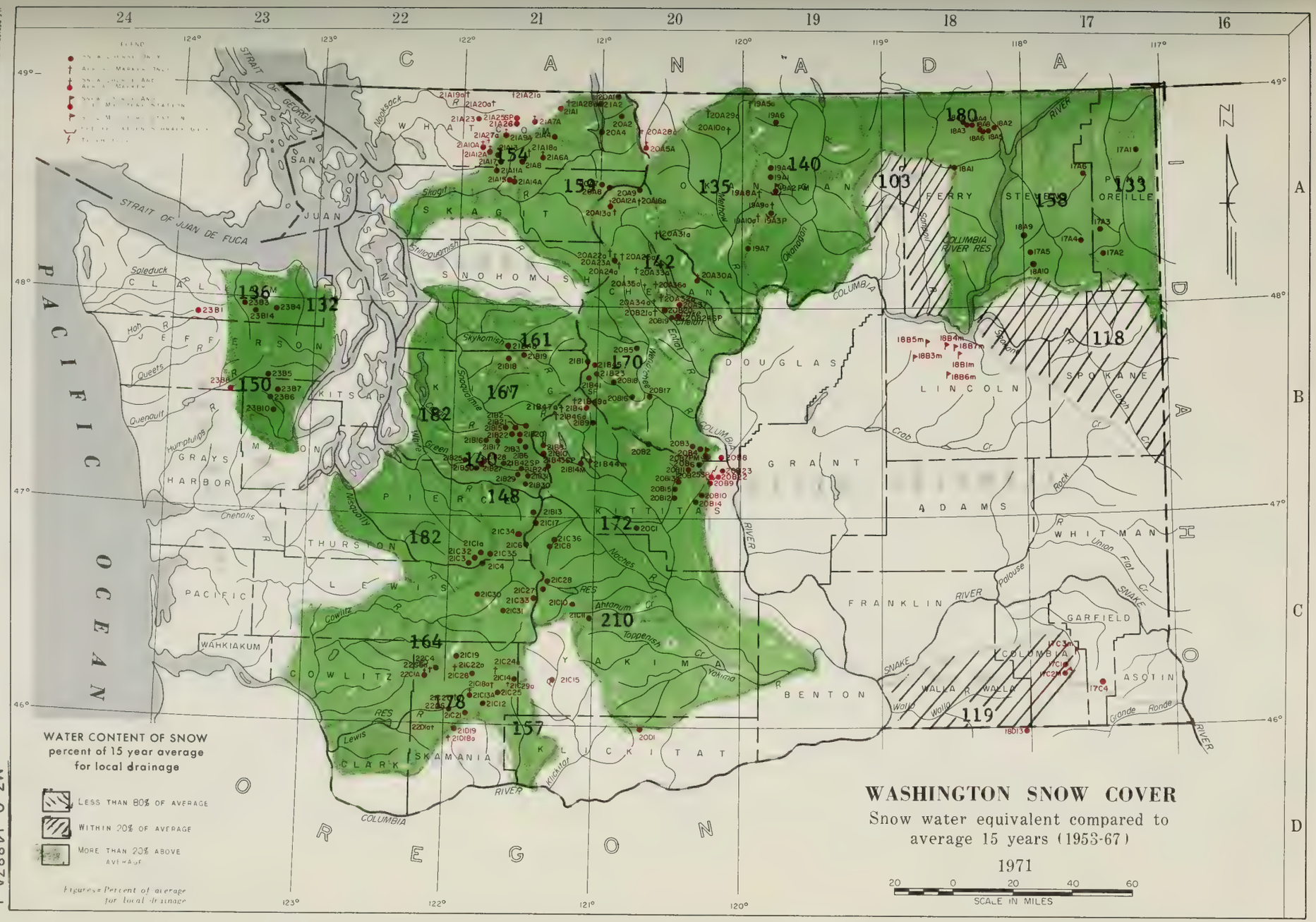

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U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Funchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B2SSP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

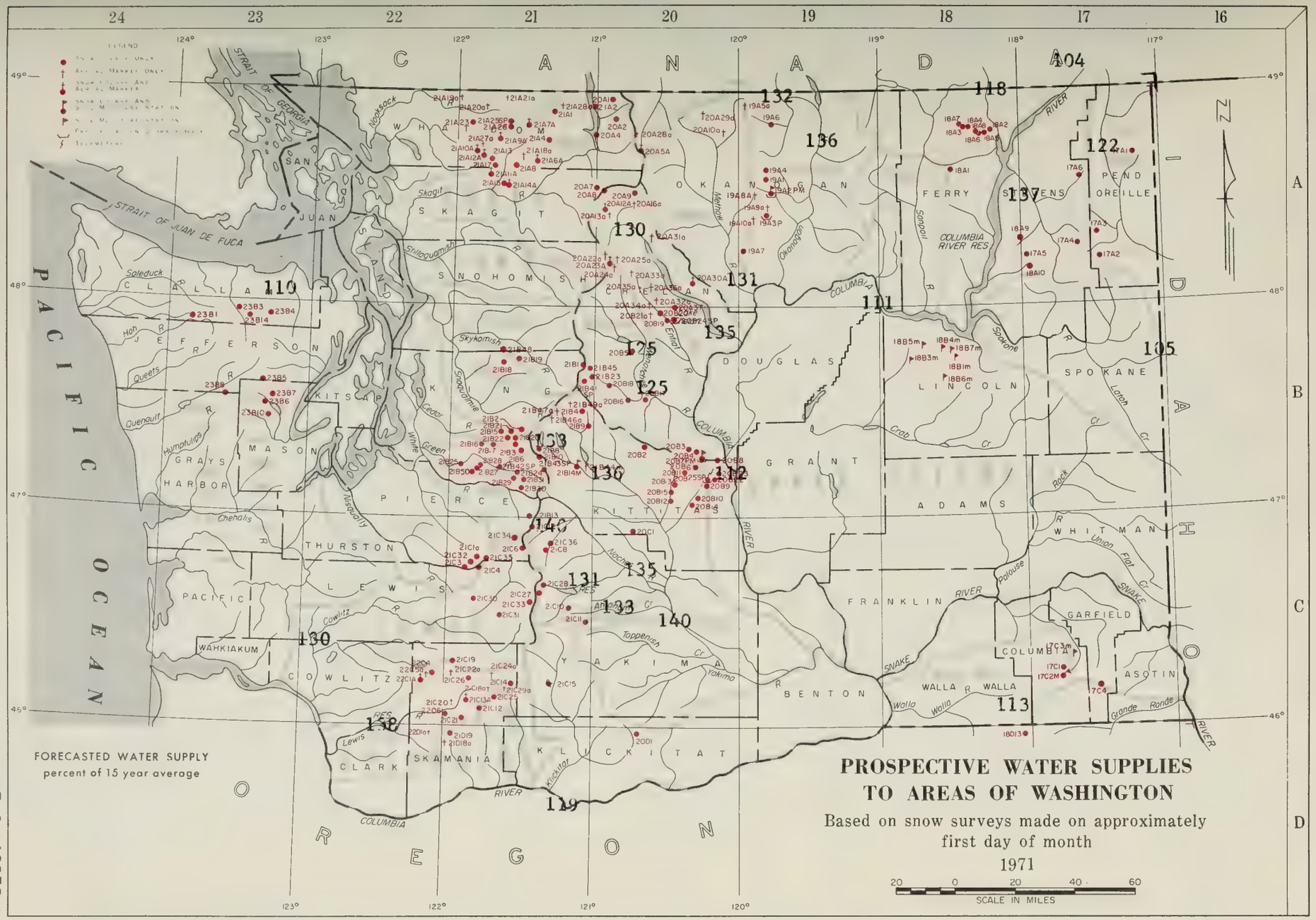
OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	6W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

M7-0-14887B-L

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	13E	5250
Punchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	22E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
April 1, 1971

* *
* As a result of the storm patterns starting the first of March *
* and continuing throughout the month there has been a marked *
* improvement in the water supply picture over the state of *
* Washington and its tributary streams. These storms deposited *
* well above-normal amounts of snow in the mountains for the *
* month of March. Precipitation in all the drainage divisions *
* as measured by the National Weather Service at valley stations *
* also showed above-normal rainfall. As of the first of March *
* the situation was good but had not reached the snowpack ex- *
* perienced in 1969. In that year there was a deterioration *
* from March to April. We have now exceeded the 1969 snowpack *
* levels and have approached, and in places even exceeded, the *
* record snowpacks of 1956. The water supply picture is, there- *
* fore, excellent and even with the most adverse climatological *
* conditions, adequate water should be experienced in all por- *
* tions of the state of Washington. *
* *
* The snowpack ranges from 103% of normal to 210% in the upper *
* Columbia portion of the basin. The lower Columbia has a snow *
* cover that ranges from 19% above to 78% above. On the west *
* side, Puget Sound drainage, the snow cover varies from 40% *
* above normal to 82% above. The Olympic Peninsula has a snow *
* cover that varies from 32% above to 50% above. The one low *
* figure in this series is the Sanpoil River. This basin is *
* measured by only one snow course and it appears to be in a *
* pocket that did not receive the snowfall of the surrounding *
* area. Reservoir storage is not a problem this year. Salmon *
* Lake and Conconully reservoirs, in the lower Okanogan drain- *
* age, have well below-normal amounts of water in storage; but *
* there should be no problem in these two reservoirs filling. *
* All other reservoirs will most likely be handled to reduce *
* flood flows in the lower portion of their watersheds. *
* *
* The precipitation during the month ranged from 10% above nor- *
* mal in the southeastern drainage division to 69% above in *
* the Yakima, Wenatchee and Chelan drainages. River flows were *
* generally near normal during the month with only the Chehalis *
* reporting well above-normal runoff. *
* *

SNOW COVER

In 1969 the snowpack was well above normal on March 1, but there was a deterioration during the month. This year there has been an increase during the month until the overall snow cover is approaching the 1956 record highs. East of the Cascades, the

Spokane in Idaho and the Sanpoil are the only two watersheds with snowpacks that are less than 20% above average. In the lower Columbia only Mill Creek drainage has less than 20% above-normal snowpack. West of the Cascades there are no watersheds with less than 20% above-average snowpacks. Elevationwise, the snow cover is heavy down to the lower elevations. Some of the biggest snowpacks, percentagewise, are in these low-elevation areas. In most years many of these snow courses are bare and so a somewhat false impression is obtained.

RESERVOIRS

There is very little chance that all reservoirs, whether for power or irrigation, will not fill with the spring runoff. About half of the reservoirs in the state have less than normal amounts of water in storage as of April 1. Some of these are a result of early draw-down for flood control while others are the result of heavy use last year with little inflow to date.

PRECIPITATION

In the November through March period, the National Weather Service reports only the northeast and southeast divisions of the state have had below-normal rainfall and these are close enough to average to be called normal. The range, percentagewise, is from 2% below to 30% above. During March, all valley precipitation was well above average ranging from 10% above for the southeast to 69% above for the central drainage division.

STREAMFLOW

Although the precipitation was above normal during March streamflow was near average. This shows up in the increased snowpacks reported above. The high streamflow during the month occurred on the Chehalis River, on the west side, and this primarily the result of low-elevation melting and rainfall. The Okanogan River at Tonasket had the least amount of runoff. Forecasts of streamflows have all been increased from those which were reported last month. Flows are now expected to range from 4% above normal for the Columbia River at Birchbank to 40% above normal for most of the gaging stations in the Yakima River basin. On the Olympic Peninsula the Dungeness River is expected to flow only 10% above normal. Most forecasts are in the 30% to 40% range. Numerical forecasts are found following this narrative.

STREAMFLOW FORECASTS - APRIL 1971

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1970 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr. Average 1953-67
COLUMBIA BASIN							
Columbia River System							
Columbia River at Birchbank 1/	48200	104	Apr-Sep	34443	47990	47182	46368
	39700	106	Apr-Jul	27808	40549	37092	37480
	28900	107	Apr-Jun	20918	32212	25280	27040
Columbia River at Grand Coulee 1/	77200	111	Apr-Sep	54604	74687	63784	69458
	66000	112	Apr-Jul	46518	65696	51685	58899
	51800	113	Apr-Jun	37541	54604	38183	45889
Columbia River bl Rock Island Dam 1/	85250	112	Apr-Sep	59163	80257	70298	76241
	72200	113	Apr-Jul	50711	71039	57403	64770
	57400	114	Apr-Jun	41070	59289	42326	50387
Columbia River at The Dalles, OR 1/	125000	119	Apr-Sep	87067	108959	89008	105176
	108000	120	Apr-Jul	75146	96628	72494	90050
	87000	120	Apr-Jun	62267	82719	55499	72410
Pend Oreille River System							
Pend Oreille River bl. Box Canyon	19500	122	Apr-Sep	14234	16166	12869	15991
	18200	123	Apr-Jul	13267	15055	11077	14772
	15700	123	Apr-Jun	11627	13033	9471	12746
Kettle River System							
Kettle River nr. Laurier	2260	118	Apr-Sep	1123	2239	1851	1918
	2190	120	Apr-Jul	1092	2188	1720	1821
	2000	122	Apr-Jun	1027	2048	1560	1644

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - April 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr. Average 1953-67
Kettle River System (Cont.)							
Colville River at Kettle Falls	210	137	Apr-Sep	94	270	63	153
	195	138	Apr-Jul	86	256	54	141
	180	137	Apr-Jun	80	240	50	131
Spokane-River System*							
Spokane River at Post Falls ID 2/	3300	105	Apr-Sep	2862	3552	1685	3151
	3200	105	Apr-Jul	2770	3463	1537	3055
	3060	105	Apr-Jun	2627	3350	1443	2913
Okanogan River System**							
Similkameen River nr. Nighthawk	2010	132	Apr-Sep	861	1199	1449	1525
	1890	133	Apr-Jul	820	1150	1359	1419
	1600	134	Apr-Jun	751	1052	1158	1197
Okanogan River nr. Tonasket	2360	136	Apr-Sep	923	1448	1567	1738
	2160	137	Apr-Jul	864	1353	1429	1578
	1830	139	Apr-Jun	785	1231	1202	1318
Methow River System**							
Methow River nr. Pateros	1380	131	Apr-Sep	622	1060	973	1054
	1290	132	Apr-Jul	587	1013	906	981
	1110	133	Apr-Jun	532	948	767	834
Chelan River System							
Chelan River at Chelan 3/	1710	135	Apr-Sep	907	1337	1224	1266
	1520	136	Apr-Jul	821	1230	1069	1119
	1190	137	Apr-Jun	689	1093	798	870
Stehekin River at Stehekin	1180	130	Apr-Sep		961	868	904
	1000	130	Apr-Jul		853	735	772
	760	130	Apr-Jun		748	535	586

* Forecasts made by Morland W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - April 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Ft. Forecast Period	1970	1969	1968	15-Yr Avg. 1953-67
Wenatchee River System							
Wenatchee River at Plain	1670	125	Apr-Sep	1019	1443	1163	1333
	1500	125	Apr-Jul	941	1349	1028	1204
	1190	125	Apr-Jun	804	1217	812	952
Wenatchee River at Peshastin	2270	125	Apr-Sep	1416	1953	1526	1814
	2080	126	Apr-Jul	1318	1840	1355	1651
	1660	126	Apr-Jun	1132	1669	1087	1316
Stemilt Basin nr. Wenatchee	140	--	May-Sep	--	145	140	
Yakima River System							
Yakima River nr. Martin 4/	193	133	Apr-Sep	130	156	97	145
	177	132	Apr-Jul	121	144	79	134
	153	132	Apr-Jun	112	136	73	116
Yakima River at Cle Elum 5/	1320	136	Apr-Sep		1051	695	968
	1200	136	Apr-Jul		977	589	885
	1030	135	Apr-Jun		912	510	762
Yakima River nr. Parker 6/	2480	140	Apr-Sep		1989	959	1772
	2420	138	Apr-Jul		2005	863	1752
	2190	136	Apr-Jun		1980	826	1608
Kachess River nr. Easton 7/	180	140	Apr-Sep	112	139	76	128
	170	140	Apr-Jul	110	134	66	122
	150	140	Apr-Jun	104	128	62	107
Cle Elum River nr. Roslyn 8/	655	135	Apr-Sep	429	496	358	485
	595	134	Apr-Jul	396	473	311	445
	495	133	Apr-Jun	345	440	264	373
Bumping River nr. Nile 9/	210	140	Apr-Sep	129	150	105	150
	195	140	Apr-Jul	121	142	93	138
	160	140	Apr-Jun	107	133	73	114

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Basin and Station	Stream	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-yr. Average 1953-67
Yakima River System (Cont.)								
American River nr. Nile		180	140	Apr-Sep	128	138	98	129
		170	142	Apr-Jul	120	130	88	120
		140	141	Apr-Jun	106	120	78	99
Tieton River at Tieton Dam 10/		330	131	Apr-Sep	245	273	166	251
		290	135	Apr-Jul	211	244	134	215
		230	134	Apr-Jun	175	220	111	172
Naches River nr. Naches 11/		1210	135	Apr-Sep		994	592	899
		1110	136	Apr-Jul		926	511	819
		960	137	Apr-Jun		857	437	698
Ahtanum Creeks nr. Tampico 12/		65	133	Apr-Sep		57	31	49
		60	135	Apr-Jul		53	27	45
		55	138	Apr-Jun		49	24	40
Lower Columbia River System								
Mill Creek nr. Walla Walla		33	113	Apr-Sep		32	15	29
		29	116	Apr-Jul		29	11	25
		27	117	Apr-Jun		27	10	23
Lewis River at Arial 13/		1880	138	Apr-Sep	869	1613	1173	1358
		1660	139	Apr-Jul	775	1431	895	1197
		1460	138	Apr-Jun	704	1303	798	1059
Cowlitz River at Castle Rock 14/		3660	130	Apr-Sep	2079	2965	2381	2813
		3220	130	Apr-Jul	1834	2641	1850	2481
		2750	130	Apr-Jun	1614	2359	1630	2119
OLYMPIC PENINSULA								
Dungeness River System								
Dungeness River nr. Sequim		190	110	Apr-Sep		195	134	172
		160	113	Apr-Jul		167	107	141
		120	114	Apr-Jun		139	78	105

10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about April 1, 1971, as per cent of the same date in 1970 and 1969 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1971 Snow Water Expressed as percent of 1970	1969	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	15 - 18	7 - 34	136	106	133*
Kettle	11 - 13	8 - 33	164	97	180*
Colville	5	12	166	109	158*
Spokane	11	7 - 34	130	102	118*
Sanpoil	1	32	117	70	103*
Okanogan	27 - 31	6 - 36	158	135	140*
Methow	6	10 - 29	145	112	135*
Chelan	3 - 4	10 - 39	191	125	142*
Entiat	8 - 9	4 - 6	188	123	--
Wenatchee	8 - 10	10 - 39	179	125	170*
Yakima	18 - 19	5 - 51	154	127	172*
Ahtanum	1	22	125	79	210*
		LOWER COLUMBIA			
Mill Creek	3	6 - 21	183	75	119*
Klickitat	1	27	201	111	--
White Salmon	2	27	204	141	157*
Lewis	10 - 18	10 - 27	207	135	178*
Cowlitz	8 - 10	8 - 31	204	146	164
		PUGET SOUND			
Nisqually	3 - 4	6 - 21	178	164	182*
White	3	15 - 31	185	136	148*
Green	5 - 8	10 - 25	222	119	140*
Cedar	4 - 7	9 - 10	382	114	182*
Snoqualmie	2 - 4	3 - 25	217	114	167*
Skykomish	2 - 3	13 - 24	205	128	161*
Skagit	11 - 14	20 - 39	205	145	159*
Nooksack	5	3 - 9	176	122	--
Baker	5 - 11	2 - 13	194	122	154*
		OLYMPIC PENINSULA			
Skokomish	4 - 5	7 - 21	227	136	150*
Elwha	1	21	265	121	136*
Dungeness	1	21	124	125	132*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured April 1971	1970	1969	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	137.9	133.8	227.5	164.0
Columbia	Franklin D. Roosevelt Lake	5232.0	1534.2	2111.5	***	2359.6
Columbia	Banks Lake	761.8	674.8	698.9	693.5	499.3
Okanogan	Conconully Reservoir	13.0	6.1	8.0	5.2	6.7
Okanogan	Salmon Lake	10.5	2.1	7.4	6.3	8.5
Chelan	Lake Chelan	676.1	179.9	22.0	88.2	169.0
		YAKIMA				
Yakima	Keechelus Lake	157.8	122.4	76.0	102.2	102.8
Kachess	Kachess Lake	239.0	190.7	181.5	181.5	184.4
Cle Elum	Lake Cle Elum	436.9	251.8	199.5	271.3	278.8
Bumping	Bumping Lake	33.7	3.3	7.2	3.3	14.0
Tieton	Rimrock Lake	198.0	139.6	110.1	158.2	135.8
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	757.2	568.5	480.3	715.2
Skagit	Diablo Reservoir	90.6	84.3	96.6	88.3	85.5
Skagit	Gorge Reservoir	9.8	8.3	8.4	8.1	--

1/ Based on Active Storage

* 15-year average 1953-67

*** Reservoir drawn down to below usable capacity

SOIL MOISTURE - April

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of April 1 1971	1970	1969
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	10.1	10.4	9.8
Krause	18B4m	2440	48	13.6	9.3	9.6	8.4
Sheffels	18B5m	2360	48	13.6	9.1	8.2	7.0
Sherman	18B7m	2440	48	13.6	8.9	8.2	6.7
Wheatridge	18B6m	2200	48	13.6	10.4	9.5	9.5
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	3.6	2.4	3.2
Trout Creek	3-M	3600	48	7.3	2.9*	--	6.5
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	4.9	5.6	--
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2	--
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.6	10.4	10.9
Helmers	17C2M	4400	48	12.0	11.0	11.2	11.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	10.1*	6.9	10.7

* March 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Oct. 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.0	7.5	7.1
Krause	18B4m	2440	48	13.6	4.4	5.9	5.2
Sheffels	18B5m	2360	48	13.6	4.4	4.5	4.9
Sherman	18B7m	2440	48	13.6	3.8	4.2	3.9
Wheatridge	18B6m	2200	48	13.6	7.8	5.4	4.6
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	1.7	2.7	2.7
Trout Creek	3-M	3600	48	7.3	3.4*	3.8*	4.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	2.4	--	3.1
Lake Cle Elum	21B14M	2200	48	12.8	7.6	--	5.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	5.9	6.1	7.4
Helmers	17C2M	4400	48	12.0	7.3	7.1	7.6
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	5.1	9.8	5.5

* November 1 measurement

PRECIPITATION [1/]

Division Averages and Departures

nage sions	FALL Sep - Oct 1970 [2/] Observed	Departure	WINTER Nov - 1970 - Mar 1971 [2/] Observed	Departure
mbia in Canada	3.64	-0.25	15.63	+2.94
Oreille - Spokane	4.30	+0.42	19.87	+1.62
heastern Washington	3.16	+0.91	11.07	-0.02
heastern Washington	3.59	+0.94	12.11	-0.30
ral Washington	3.05	-1.39	33.80	+6.67
h Central Washington	1.36	-0.05	8.22	+1.88
hwest Slope Cascades	12.29	+0.62	63.74	+11.60
hwest Slope Cascades	7.74	+0.02	52.21	+11.34

heastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
heastern Washington	- Touchet, Tucannon and Palouse drainages.
tral Washington	- Yakima, Wenatchee and Chelan drainages.
th Central Washington	- Methow and Okanogan drainages.
thwest Slope Cascades	- Puget Sound drainages.
thwest Slope Cascades	- Lower Columbia drainages.

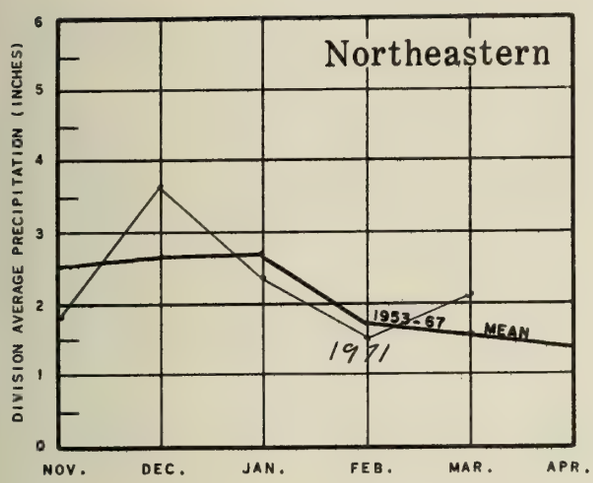
- Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

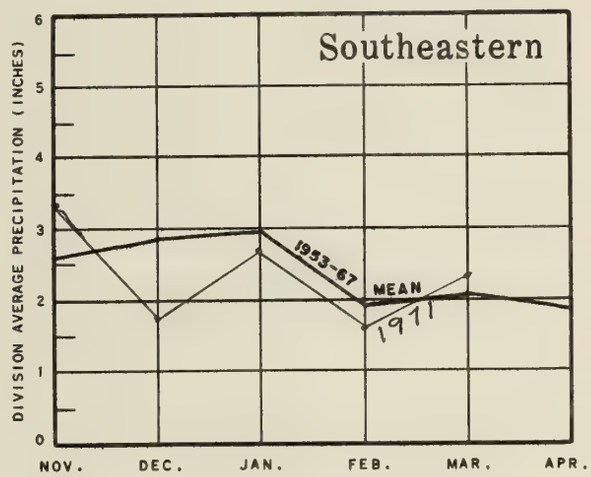
- Departure from 15-year (1953-67) drainage division average.

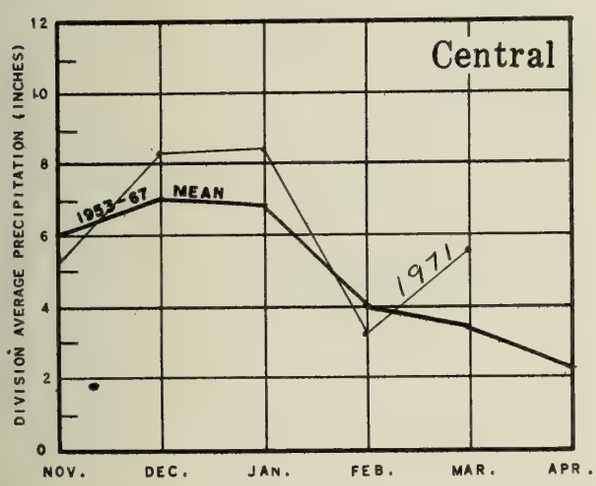
WASHINGTON VALLEY PRECIPITATION

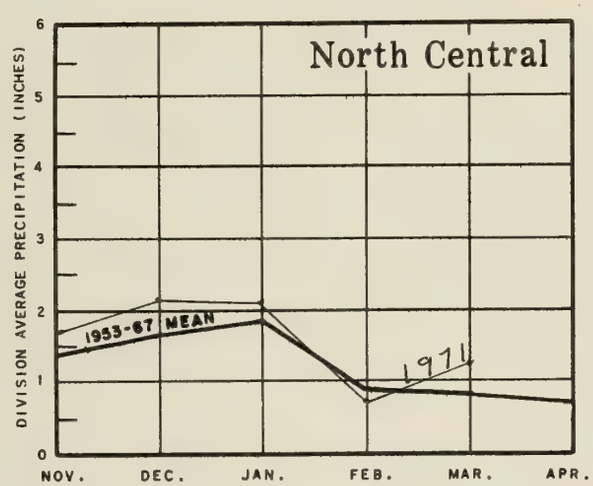
1970-1971

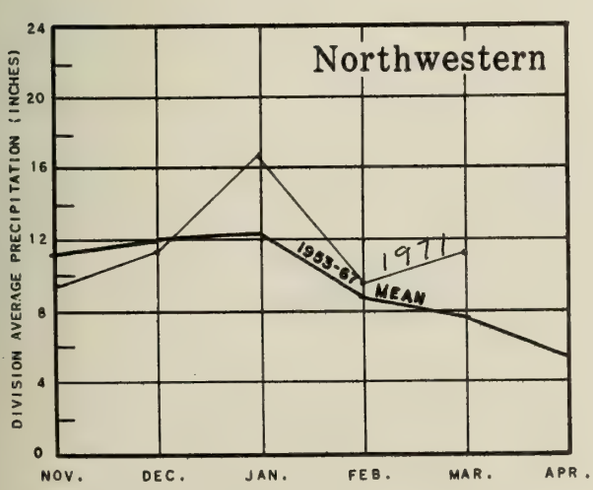
DRAINAGE AREAS

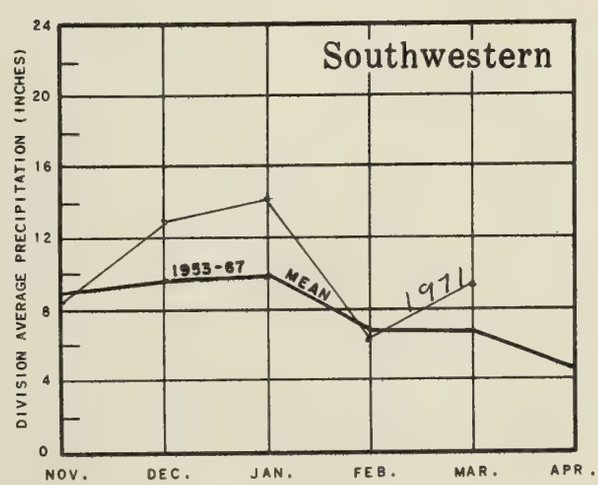










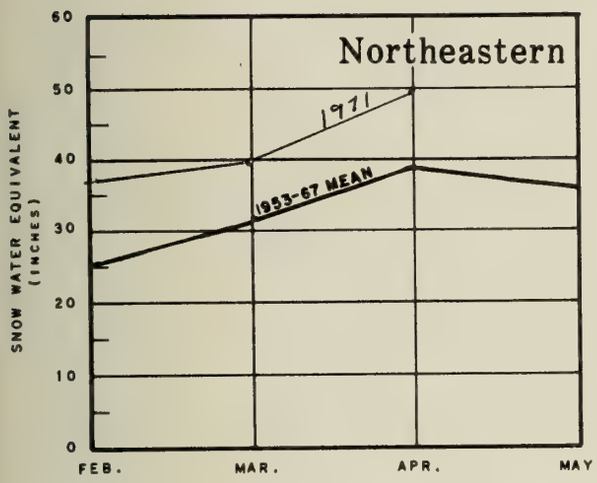


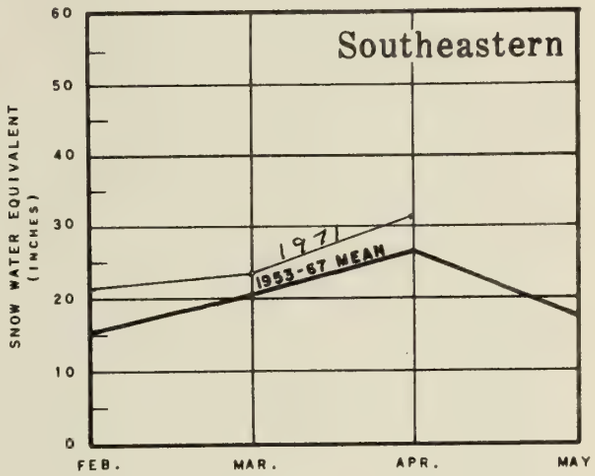
Preliminary Analysis by U. S. Weather Bureau

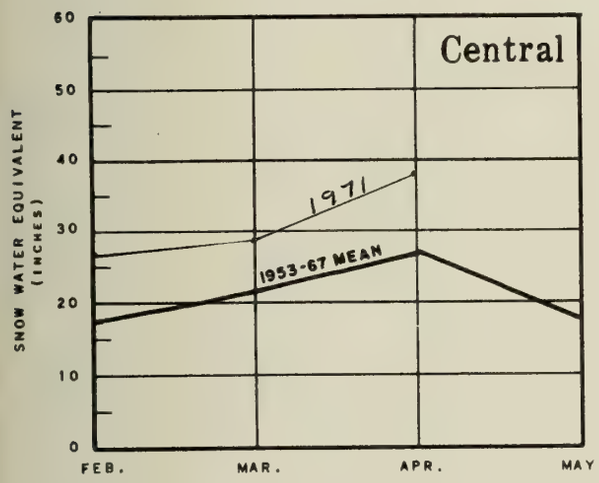
WASHINGTON SNOW COVER

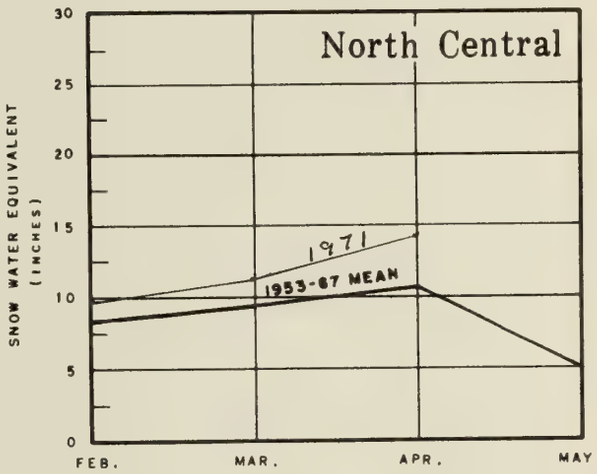
1971

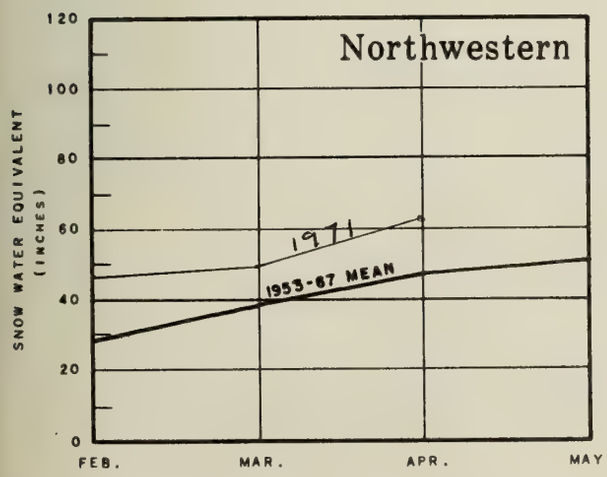
DRAINAGE AREAS

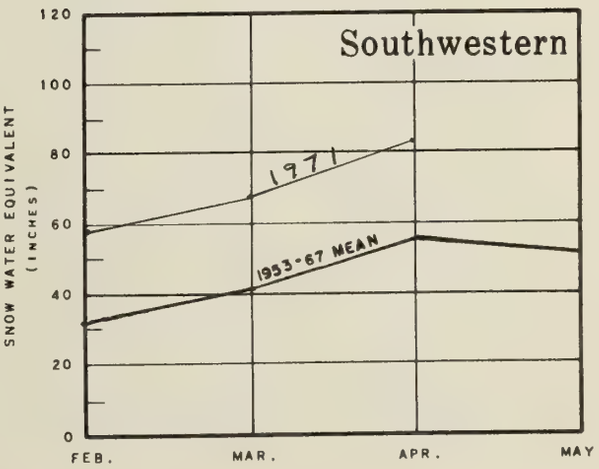












Selected Snow Survey Courses by Soil Conservation Service

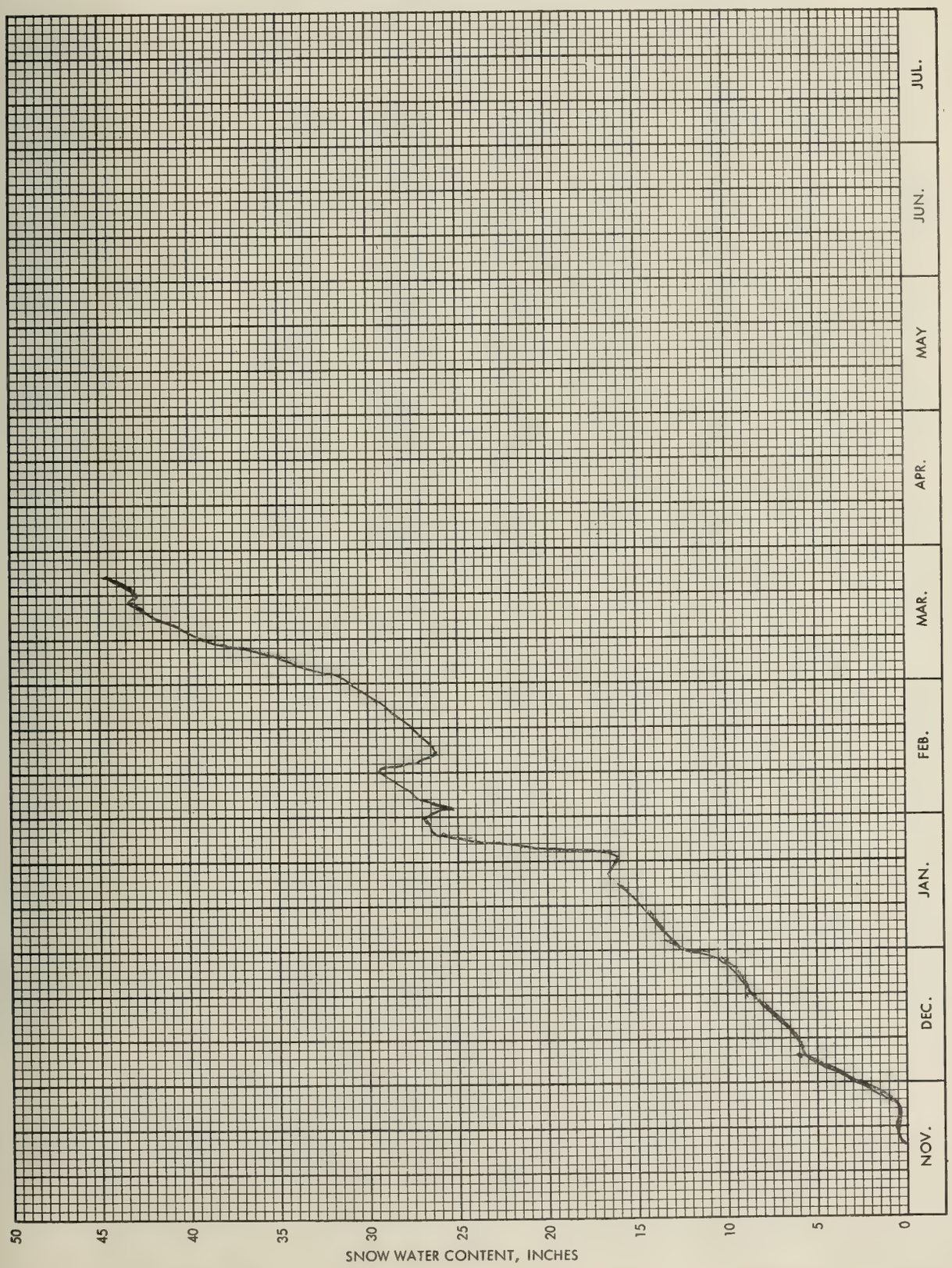
SNOW PILLOW DATA

Cougar Mountain - FS

1970 - 71

Sec. 28 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



WSFB-X4-N

APPENDIX 1

SNOW DATA MARCH 1 to APRIL 1, 1971

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	4/1	140	57.5	42.6	49.6
Baree Midway	15B16	4600	4/1	103	41.8	35.5	--
Baree Trail	15B15	3800	4/1	41	16.2	13.2	7.8
Benton Meadow	16A2	2344	4/1	16	6.2	6.2	3.2
Benton Spring	16A3	4900	3/29	66	22.2	20.8	20.8
Boyer Mountain	17A2	5250	3/29	94	36.0	25.6	27.9
Brush Creek	14A4	5000	3/30	47	13.2	13.0	13.1
Bunchgrass Meadow	17A1	5000	3/30	92	32.4	25.7	31.8
#Chewelah	17A4	4925	3/28	62	19.4	16.8	19.2*
Heart Lake Trail	14C10	4800	3/30	79	33.2	20.8	23.0
Hoodo Basin	15C10	4800	3/30	157	67.8	47.8	--
Hoodo Creek	15C1	6200	3/30	157	64.2	44.1	50.6
Lookout	15B2	5250	4/1	131	49.8	34.6	38.4
Mosquito Ridge	16A4A	5100	4/1	114	44.0	37.8	40.2*
Nelson	Canada	3050	3/31	60	20.6	13.2	15.6**
Schweitzer Bowl	16A6	4500	3/30	105	38.8	29.3	--
Schweitzer Ridge	16A5	6100	3/30	140	55.5	40.2	--
Smith Creek	16A1	4800	3/30	163	64.7	31.9	50.1
Winchester Creek	17A3	2970	3/29	53	18.4	11.9	11.3*
KETTLE RIVER							
Barnes Creek	Canada	5500	4/2	70	23.1	14.4	21.2**
Big White Mountain	Canada	5500	3/31	76	20.9	14.8	19.0**
Boulder Road	18A2	1450	3/9	24	8.0	--	--
			3/25	20	7.8	0.0	1.8*
Butte Creek	18A3	4070	3/9	38	10.3	--	--
			3/25	39	11.7	9.4	9.9*
Cabin Creek	18A8	3170	3/9	35	10.0	--	--
			3/25	36	11.3	8.7	8.9*
Carmi	Canada	4100	3/31	27	8.6	5.7	5.8**
Farron	Canada	4000	3/30	60	19.0	11.4	13.2**
Goat Creek	18A4	3595	3/29	31	9.2	--	--
			3/25	28	9.2	5.4	6.5*
Lower Trapping Cr.	Canada	3050	3/31	21	7.4	2.4	2.7**
#Monashee Pass	Canada	4500	4/2	51	15.5	8.9	13.7**
Old Glory Mountain	Canada	7000	3/27	90	30.0	21.1	27.1**

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
KETTLE RIVER (Cont.)							
Snow Caps Creek	18A5	2150	3/9	24	7.3	--	--
			3/25	17	6.5	0.0	1.9*
Snow Caps Trail	18A6	2720	3/9	32	9.1	--	--
			3/25	28	9.2	4.6	5.7*
Summit G. S.	18A7	4600	3/9	32	8.6	--	--
			3/25	34	9.2	7.9	9.6*
Upper Trapping Cr.	Canada	5500	3/31	42	11.4	7.4	8.6**
COLVILLE RIVER							
Baird	17A6	3215	3/27	28	8.0	7.5	6.4*
Carlson	18A9	2885	3/28	17	6.0	2.4	2.7*
Chewelah	17A4	4925	3/28	62	19.4	16.8	19.2*
Stranger Mountain	17A5	4990	3/28	69	22.3	14.2	14.3*
Togo	18A10	3370	3/28	60	20.8	10.3	11.2*
SPOKANE RIVER							
Above Burke	15B8	4100	3/27	81	34.0	22.8	25.0*
Above Roland	15B7	4350	4/1	106	45.1	36.5	34.8*
Below Roland	15B6	3770	4/1	50	20.9	19.9	17.0*
Copper Ridge	16B2	4800	3/29	81	31.5	27.5	31.1
Forty-nine Meadows	15B3	5000	4/1	118	46.0	30.2	36.1
Fourth of July Summit	16B3	3100	3/15	38	11.2	10.0	--
			4/1	30	10.9	8.0	11.2*
Granite Peak	15B13A	6000	4/1	166	64.4	42.6	51.2*
Kellogg Peak	16B5A	5560	4/1	115	46.3	29.8	33.5*
#Lookout	15B2	5250	4/1	131	49.8	34.6	38.4
Lost Lake	15B14A	6000	Not Measured			51.6	66.2*
Lower Sands Creek	16B1	3400	3/29	66	24.6	20.6	21.0
Medicine Ridge	15B4A	6150	4/1	150	55.1	42.8	--
#Mosquito Ridge	16A4A	5110	4/1	114	44.0	37.8	40.2*
Outlaw Creek	15B12A	3750	4/1	70	26.1	15.1	17.8*
Sherwin	16C1	3200	3/31	43	14.7	11.4	16.6*
Sunset	15B9A	5600	4/1	119	46.1	32.6	35.6*
Roland Summit	15B5A	5200	4/1	126	53.0	--	--
SANPOIL RIVER							
Sherman Creek Pass	18A1	5350	3/29	55	15.6	13.3	15.2

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	3/30	26	7.0	4.7	6.1**
Blackwall Peak	Canada	6250	3/30	126	47.5	27.3	33.3**
Bouleau Creek	Canada	5000	3/31	53	15.8	10.2	11.8**
Brenda Mine	Canada	4800	3/29	57	17.0	9.6	--
Brookmere	Canada	3200	3/28	48	16.6	8.0	9.6**
Carrs Landing Lower	Canada	2250	3/27	5	1.5	0.0	--
Carrs Landing Upper	Canada	3200	3/27	22	5.2	4.4	3.3**
Clark +	19A8a	7000	4/1	88	29.9	--	23.1*
Copper Mountain	Canada	4300	3/28	23	7.7	5.4	5.5**
Enderby	Canada	6250	3/25	126	38.1	33.6	37.2**
#Freezeout Meadows	20A2	5000	4/3	143	58.0	23.4	32.6
Hamilton Hill	Canada	4900	3/27	61	19.3	13.1	14.4**
#Harts Pass	20A5A	6500	4/1	157	61.1	36.6	46.6
#Horseshoe Basin +	19A5a	7000	4/3	64	24.3	16.4	13.5*
Isintok Lake	Canada	5510	3/27	35	9.5	5.5	6.7**
Lost Horse Mountain	Canada	6300	3/31	50	12.4	7.8	7.5**
#Loup Loup	19A7	4650	3/30	47	13.3	9.5	8.7*
Lower Esperon Cr.	Canada	4270	3/28	57	16.3	10.6	--
McCulloch	Canada	4200	3/29	35	8.0	5.8	6.6**
Middle Esperon Cr.	Canada	4580	3/28	74	21.8	12.0	--
Missezula Mountain	Canada	5100	3/30	43	14.0	7.2	7.8**
Mission Creek	Canada	6000	3/29	77	25.1	14.0	19.9**
Monashee Pass	Canada	4500	4/2	51	15.5	8.9	13.7**
Mount Kobau	Canada	5950	3/31	52	16.8	11.7	12.9**
Muckamuck +	19A9a	6390	4/1	62	21.1	--	17.5*
Mutton Cr. No. 1	19A1	5700	3/29	58	18.4	13.0	14.1
Mutton Cr. No. 2	19A4	6000	3/29	61	20.6	13.0	15.1
New Copper Mountain	Canada	4300	3/26	29	10.6	6.1	4.4**
New Penticton Res #2	Canada	6200	3/30	39	10.0	6.8	8.4**
Nickel Plate Mountain	Canada	6200	3/30	39	12.1	7.6	7.5**
Paysayten +	20A28a	4300	4/3	68	25.8	14.7	14.9*
Postill Lake	Canada	4500	3/31	42	11.6	7.7	8.7**
#Quartette Lake	Canada	4000	3/26	57	18.9	12.8	14.9**
Rusty Creek	19A3	4000	3/30	26	8.8	7.4	7.0
Salmon Meadows	19A2	4500	3/29	47	14.2	10.0	10.6
Silver Star Mountain	Canada	6050	3/28	93	34.8	22.6	26.1**
Starvation Mountain +	19A10a	6750	4/1	69	23.5	--	22.7*
Summerland Reservoir	Canada	4200	3/28	46	13.5	7.5	8.7**
Touts Coulee	19A6	2845	3/31	15	4.4	--	--
Trout Creek	Canada	4700	3/29	37	10.1	6.4	7.0**
Upper Esperon Creek	Canada	5290	3/28	79	26.5	15.2	--
White Rocks Mountain	Canada	6000	3/29	88	34.1	18.5	20.2**

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	4/3	140	53.2	30.8	34.4*
Dollar Watch +	20A29a	7000	4/3	96	36.5	26.2	27.6*
Harts Pass	20A5A	6500	4/1	157	61.1	36.6	46.6
Horseshoe Basin +	19A5a	7000	4/3	64	24.3	16.4	13.5*
Loup Loup	19A7	4650	3/30	47	13.3	9.5	8.7*
#Mutton Creek No. 1	19A1	5700	3/29	58	18.4	13.0	14.1
#Mutton Creek No. 2	19A4	6000	3/29	61	20.6	13.0	15.1
#Rusty Creek	19A3	4000	3/30	26	8.8	7.4	7.0
#Salmon Meadows	19A2	4500	3/29	47	14.2	10.0	10.6
#War Creek Pass +	20A31a	6500	4/3	147	57.3	26.2	--
CHELAN LAKE BASIN							
Lyman Lake	20A23A	5900	3/22	203	82.4	46.6	58.5
Park Creek Flat +	20A13a	2220	Not Measured			--	34.4*
Park Creek Ridge +	20A12A	4600	3/30	167	66.8	33.7	46.5
Rainy Pass	20A9	4780	4/1	144	57.6	31.0	41.2
Safety Harbor	20A30A	6300	3/25	110	42.7	20.9	--
War Creek Pass +	20A31a	6500	4/3	147	57.3	26.2	--
ENTIAT RIVER							
Brief	20B19	1600	3/26	30	11.7	4.6	2.5*
Entiat Meadows +	20A33a	4800	3/15	174	64.0	--	--
			3/29	174	64.9	36.9	--
Entiat River Tr. +	20A34a	3150	3/15	97	33.0	--	--
			3/29	100	38.0	17.0	--
Fox Camp +	20A36a	6510	3/15	182	71.4	--	--
			3/29	182	67.9	42.5	--
Pope Ridge	20B20	4300	3/11	74	25.2	17.4	--
			3/30	73	27.8	16.3	--
Pugh Ridge +	20A32a	6400	3/15	121	44.5	--	--
			3/29	130	48.5	32.5	--
Shady Pass	20A37	5000	3/15	102	37.4	20.0	--
			3/31	103	38.5	21.0	--
Snow Brushy +	20A35a	3850	3/15	147	54.1	--	--
			3/29	157	58.6	27.2	--
Tommy Creek +	20B21a	5300	3/15	91	33.5	--	--
			3/29	92	34.3	20.9	--

\+ Snow water equivalent estimated from aerial stadia observations
* Adjusted 1953-67 average
\# Not located directly on this drainage

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	3/29	111	45.6	28.8	27.5*
Berne-Mill Creek New	21B41SP	3240	3/29	92	40.9	29.8	--
Blewett Pass No. 2	20B2	4270	3/26	61	24.8	19.0	16.1
Chiwaukum G. S.	20B16	1810	3/29	53	19.4	10.4	9.6*
#Fish Lake	21B4	3371	3/29	133	56.8	31.0	35.4
Lake Wenatchee	20B5	1970	3/29	56	24.0	9.9	11.1*
Leavenworth R. S.	20B17	1127	3/15	16	6.2	--	--
			3/29	7	3.2	0.3	--
#Lyman Lake	20A23A	5900	3/22	203	82.4	46.6	58.5
Merritt	20B18	2140	3/29	60	24.6	14.0	14.2*
Stevens Pass	21B1	4070	3/15	176	67.9	48.3	49.7
			3/29	182	79.1	37.0	54.1
Stevens Pass S. Shed	21B45	3700	3/15	136	50.7	33.7	--
			3/29	130	57.2	30.7	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	3/30	27	9.8	11.4	7.7*
Scout-A-Vista	20B4	3400	3/30	33	11.3	10.2	6.4*
STEMILT CREEK							
Jump-Off	20B8	4450	3/29	33	11.2	12.0	7.3*
Stemilt Slide	20B6	5000	3/29	55	19.1	14.9	13.3*
Upper Wheeler	20B7	4400	3/29	33	13.6	12.4	8.3*
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	3/30	46	18.5	18.7	--
Colockum Creek Lower	20B23	4300	3/30	38	13.0	13.8	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	3/26	29	10.3	8.2	4.9*
Big Boulder Creek	21B9	3200	3/29	82	34.7	21.4	18.7
#Blewett Pass No. 2	20B2	4270	3/26	61	24.8	19.0	16.1
Bumping Lake	21C8	3450	3/15	73	29.0	25.8	16.9*
			3/30	70	29.5	22.2	16.8
Bumping Lake New	21C36	3400	3/15	84	31.5	28.5	--
			3/30	83	34.0	27.4	--
#Cayuse Pass	21C6	5300	4/1	302	135.3	73.1	91.2

Not located directly on this drainage
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++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
Colockum Pass	20B9	5370	3/29	66	21.8	19.7	18.6*
Cooke Creek	20B10	4123	3/29	29	9.7	7.6	5.5*
#Corral Pass	21C13	6000	4/1	148	59.8	35.2	41.7*
Fish Lake	21B4	3371	3/29	133	56.8	31.0	35.4
Green Lake	21C10	6000	Not Measured			38.2	33.2*
Grouse Camp	20B11	5385	3/30	59	20.4	18.9	18.2*
High Creek	20B12	2930	3/30	28	10.8	0.0	0.9*
Joe Lake	21B46a	4624	Marker down				
Lake Cle Elum	21B14M	2200	3/12	27	7.8	10.8	11.0*
			3/31	23	8.8	1.2	5.7
Lemah Creek +	21B47a	3327	3/16	159	63.6	--	--
			Late Report			40.9	--
Manashtash	20C1	3935	3/31	19	6.5	5.2	1.8*
Morse Lake	21C17	5400	3/30	236	94.4	47.3	62.0*
Nanum	21B39	2340	3/30	41	14.5	12.4	8.0*
#Olallie Meadows	21B2	3625	3/25	184	81.0	39.1	51.3
#Satus Pass	20D1	4030	3/31	51	19.9	9.9	--
#Stampede Pass	21B10	3000	3/15	167	65.1	34.0	45.2
			3/31	174	67.5	34.6	48.8
Trail Creek	20B14	3360	3/29	0	0.0	0.0	--
Tunnel Avenue	21B8	2450	3/15	100	35.2	22.0	25.2*
			3/30	96	38.2	19.3	25.9
Walters Flat	20B15	3360	3/30	30	11.1	6.4	4.9*
Waptus Lake +	21B49a	3024	3/16	153	61.2	--	--
			Late Report			40.9	--
White Pass (E. Side)	21C28	4500	3/18	96	37.7	25.4	24.4*
			4/1	97	41.7	25.1	26.6*
White Pass (L. Lake)	21C27	4500	3/18	106	43.6	32.4	31.4*
			3/30	108	42.5	31.5	32.6*
Van Epps Pass	20B26a	5925	3/16	174	69.6	New Marker	
			Late Report				
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	3/26	29	10.3	8.2	4.9*
#Green Lake	21C10	6000	Not Measured			38.2	33.2*

\# Not located directly on this drainage
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* Adjusted 1953-67 average

1953-1967 period

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	3/22	73	22.7	26.9	--
MILL CREEK							
Homestead	17C1	4030	3/31	25	9.9	3.1	7.9*
Martin Springs	17C2	4400	3/31	42	16.6	13.2	14.5*
Tollgate	18D3M	5070	3/29	73	30.7	29.7	25.9
KLICKITAT RIVER							
Satus Pass	20D1	4030	3/31	51	19.9	9.9	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	3/9	163	64.9	35.4	38.9*
			4/1	177	79.3	38.5	49.7
#Surprise Lakes	21C13A	4250	3/9	170	69.3	39.8	42.0
			4/1	192	84.2	41.9	54.8
WIND RIVER							
#Old Man Pass	21D19	3100	3/5	97	32.9	9.6	15.8*
			4/1	102	44.4	6.2	20.7*
LEWIS RIVER							
Blue Lake +	21C22a	4800	4/1	300	130.0	78.7	84.2*
Bob's Trail	21C21	2200	4/1	76	33.0	0.0	13.8*
Calamity Ridge +	22D1a	2500	4/1	48	20.6	0.0	--
Council Pass +	21C18a	4200	4/1	162	71.3	36.5	42.6*
#Cultus Creek	21C12	4000	3/9	163	64.9	35.4	38.9*
			4/1	177	79.3	38.5	49.7
Divide Meadow +	21C29a	5600	4/1	204	89.8	52.2	60.0*
Grand Meadow	21C25	3500	4/1	106	46.0	18.1	29.0*
Lone Pine Shelter	21C26	3800	3/5	162	61.1	26.9	31.4*
			4/3	175	77.7	26.6	--
Marble Mountain+	22C5a	3200	4/1	160	73.6	7.7	--
#Mosquito Meadows	21C19	4100	3/5	168	62.9	27.7	34.4*
			4/3	177	80.3	29.2	47.4*

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++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LEWIS RIVER (Cont.)							
New Muddy River	22C6	1400	4/2	50	20.7	0.0	--
Old Man Pass	21D19	3100	3/5	97	32.9	9.6	15.8*
			4/1	102	44.4	6.2	20.7*
Plains of Abraham +	22C1a	4400	4/1	242	108.9	82.8	70.2*
Smith Creek Road	22C4	2100	4/2	87	41.9	2.6	17.2*
Spencer Meadow +	21C20a	3400	4/1	116	51.0	2.7	25.6*
Surprise Lakes	21C13A	4250	3/9	170	69.3	39.8	42.0
			4/1	192	84.2	41.9	54.8
Table Mountain +	21C24a	4200	4/1	184	81.0	43.1	49.2*
Timbered Peak +	21D18a	3000	4/1	85	36.6	0.0	23.7*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	4/1	302	135.3	73.1	91.2
Mosquito Meadows	21C19	4100	3/5	168	62.9	27.7	34.4*
			4/3	177	80.3	29.2	47.4*
Ohanapecosh	21C32	2200	3/30	78	36.0	2.4	16.4*
Packwood Lake	21C31	2870	4/1	66	29.1	1.2	13.5*
Pigtail Peak	21C33	5900	3/18	204	93.0	50.3	--
			3/30	216	88.0	51.8	72.9*
#Plains of Abraham +	22C1a	4400	4/1	242	108.9	82.8	70.2*
Potato Hill	21C14	4500	3/5	125	44.9	27.6	25.7
			4/1	130	55.1	29.3	33.0*
#White Pass (E. Side)	21C28	4500	3/18	96	37.7	25.4	24.4*
			4/1	97	41.7	25.1	26.6*
#White Pass (L. Lake)	21C27	4500	3/18	106	43.6	32.4	31.4*
			3/30	108	42.5	31.5	32.6*
Willame Creek	21C30	3250	4/1	116	54.6	14.4	35.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	3/29	175	73.0	36.0	50.1
Longmire	21C3	2760	3/29	66	27.3	0.0	10.6
New Paradise Park	21C35	5500	3/29	250	106.6	66.2	--
Stem Glade	21C1	5050	3/29	249	104.7	61.1	74.4

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
WHITE RIVER							
#Cayuse Pass	21C6	5300	4/1	302	135.3	73.1	91.2
Corral Pass	21C13	6000	4/1	148	59.8	35.2	41.7*
#Morse Lake	21C17	5400	3/30	236	94.4	47.3	62.0*
GREEN RIVER							
Airstrip	21B24	1800	3/5	25	5.0	0.0	--
			4/1	8	3.6	0.0	--
Charley Creek	21B25	1200	3/5	20	4.0	0.0	--
			4/1	0	0.0	0.0	--
Cougar Mountain SP	21B42SP	3200	3/25	86	37.0	28.0	--
Grass Mountain # 2	21B27	2900	3/5	100	34.7	15.1	18.1*
			4/1	108	45.2	16.1	26.1*
Grass Mountain # 3	21B28	2100	3/5	44	11.5	0.0	--
			4/1	33	13.5	0.0	--
Lester Creek	21B29	3100	3/5	101	29.4	18.0	20.7*
			4/1	101	40.0	19.5	28.7*
Lynn Lake	21B50	4000	3/5	93	33.8	11.1	--
			4/1	96	44.7	10.6	--
Sawmill Ridge	21B29	4700	3/5	142	49.0	24.6	36.5*
			4/1	146	60.8	28.6	46.0*
Snowshoe Butte SP	21B43SP	5000	3/25	197	77.0	45.0	--
Stampede Pass	21B10	3000	3/15	167	65.1	34.0	45.2
			3/31	174	67.5	34.6	48.8
Twin Camp	21B30	4100	3/5	92	30.2	21.3	24.9*
			4/1	95	37.2	23.5	31.0*
CEDAR RIVER							
City Cabin	21B3	2390	3/28	93	36.9	8.5	18.3*
Mt. Gardner	21B21	3300	3/28	94	40.9	4.0	19.8*
Mt. Lindsay	21B16	2500	3/30	92	36.6	8.2	17.7*
Mt. Washington	21B15	3000	3/30	47	18.8	0.0	8.9*
Rex River	21B17	2400	3/28	45	15.7	0.0	19.8*
S. F. Cedar	21B6	3000	3/28	102	41.0	9.3	24.8
Tinkham Creek	21B20	3400	3/28	123	46.7	22.8	23.2*
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	3/31	182	78.1	33.8	--
#Lake Elizabeth	21B19	2900	3/29	178	82.5	38.6	46.9*
Olallie Meadows	21B2	3625	3/25	184	81.0	39.1	51.3
S. F. Tolt	21B18	1900	3/31	9	3.7	0.0	--

Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 10

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	3/29	178	82.5	38.6	46.9*
#Stevens Pass	21B1	4070	3/15	176	67.9	48.3	49.7
			3/29	182	79.1	37.0	54.1
#Stevens Pass S. Shed	21B45	3700	3/15	136	50.7	33.7	--
			3/29	130	57.2	30.7	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	3/5	68	23.4	8.3	14.0*
			4/1	74	31.1	3.1	13.6
Beaver Pass	21A1	3680	4/1	132	50.6	26.6	35.6
Devils Park	20A4	5900	4/1	150	57.2	34.4	46.0
Freezeout Cr. Trail	20A1	3500	3/5	59	19.8	10.0	12.6
			4/3	64	23.8	10.7	13.4
Freezeout Meadows	20A2	5000	4/3	143	58.0	23.4	32.6
#Harts Pass	20A5A	6500	4/1	157	61.1	36.6	46.6
Klesilkwa	Canada	3700	4/3	65	25.4	9.5	14.5**
Lake Hozomeen	21A2	2600	3/5	52	17.5	6.9	9.0*
			4/3	55	20.4	6.5	10.4
#Lyman Lake +	20A23A	5900	3/22	203	82.4	46.6	58.5
Meadow Cabins	20A8	1900	4/1	30	11.4	0.5	7.5
New Tashme	Canada	2500	4/1	44	19.4	3.6	10.4**
Quartette Lake	Canada	4000	3/26	57	18.9	12.8	14.9**
#Rainy Pass	20A9	4780	4/1	144	57.6	31.0	41.2
Thunder Basin	20A7	4200	4/1	90	32.0	19.0	25.8
BAKER RIVER							
Baker Pass +	21A27a	4900	Not Measured			62.9	--
			Not Measured			62.9	--
Dock Butte +	21A11A	3800	Not Measured			42.2	--
			4/4	235	100.8	47.0	81.0*
Easy Pass +	21A7A	5200	Not Measured			58.1	--
			4/4	262	113.3	69.3	96.7*
Jasper Pass +	21A6A	5400	Not Measured			73.9	--
			4/4	289	126.0	63.6	103.6*
Komo Kulshan	21A17	800	4/4	41	16.8	0.0	--
Marten Lake	21A9A	3600	Not Measured			51.9	--
			Late Report			55.8	88.2*
Mount Blum +	21A18a	5800	Not Measured			51.5	--
			Late Report			51.0	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
BAKER RIVER (Cont.)							
#Panorama New	21A26	4300	3/14	218	87.2	55.3	--
			3/28	239	96.6	55.8	--
Rocky Creek	21A12A	2100	Not Measured			5.3	32.4*
			4/3	136	57.9	10.3	30.5*
Schreibers Meadow	21A10A	3400	Not Measured			48.4	63.8*
			Late Report			44.8	73.3*
S. F. Thunder Cr.	21A14A	2200	Not Measured			0.0	--
			4/3	44	17.6	0.0	5.3*
Sulphur Creek	21A13	1600	4/3	75	32.6	0.0	13.7*
Three Mile Cr.	21A8A	4500	4/3	19	6.3	0.0	--
Watson Lakes	21A8A	4500	Not Measured			39.6	69.0*
			4/3	246	103.2	46.0	78.2*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	3/31	177	70.8	45.0	--
Canyon +	21A20a	5100	3/31	215	86.0	50.4	--
Glacier Creek	21A23	3700	4/1	100	40.5	16.8	--
Panorama New	21A26	4300	3/14	218	87.2	55.3	--
			3/28	239	96.6	55.8	--
Twin Lakes +	21A21a	5200	3/31	235	94.0	68.0	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	3/31	95	34.9	28.1	26.4*
MORSE CREEK							
Cox Valley	23B14	4500	3/31	181	67.2	30.6	--
ELWHA RIVER							
Hurricane	23B3	4500	3/28	121	39.8	15.0	29.3
SKOKOMISH RIVER							
Black & White	23B7	4200	3/31	184	73.0	24.8	47.9
Black & White Lakes	23B6	4700	3/31	221	98.8	50.4	67.3
Four Streams	23B10	3000	3/31	161	67.8	12.7	--
Home Sweet Home	23B5	5200	3/31	290	119.3	58.2	81.9
Sundown Pass	23B8	3900	3/31	253	104.0	48.7	66.5*

* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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MAY 2 1972
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAY 1, 1971

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbis Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA-SCS-PORTLAND, OREG. 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
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SPOKANE, WASHINGTON

In Cooperation with

JOHN A. BIGGS
DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
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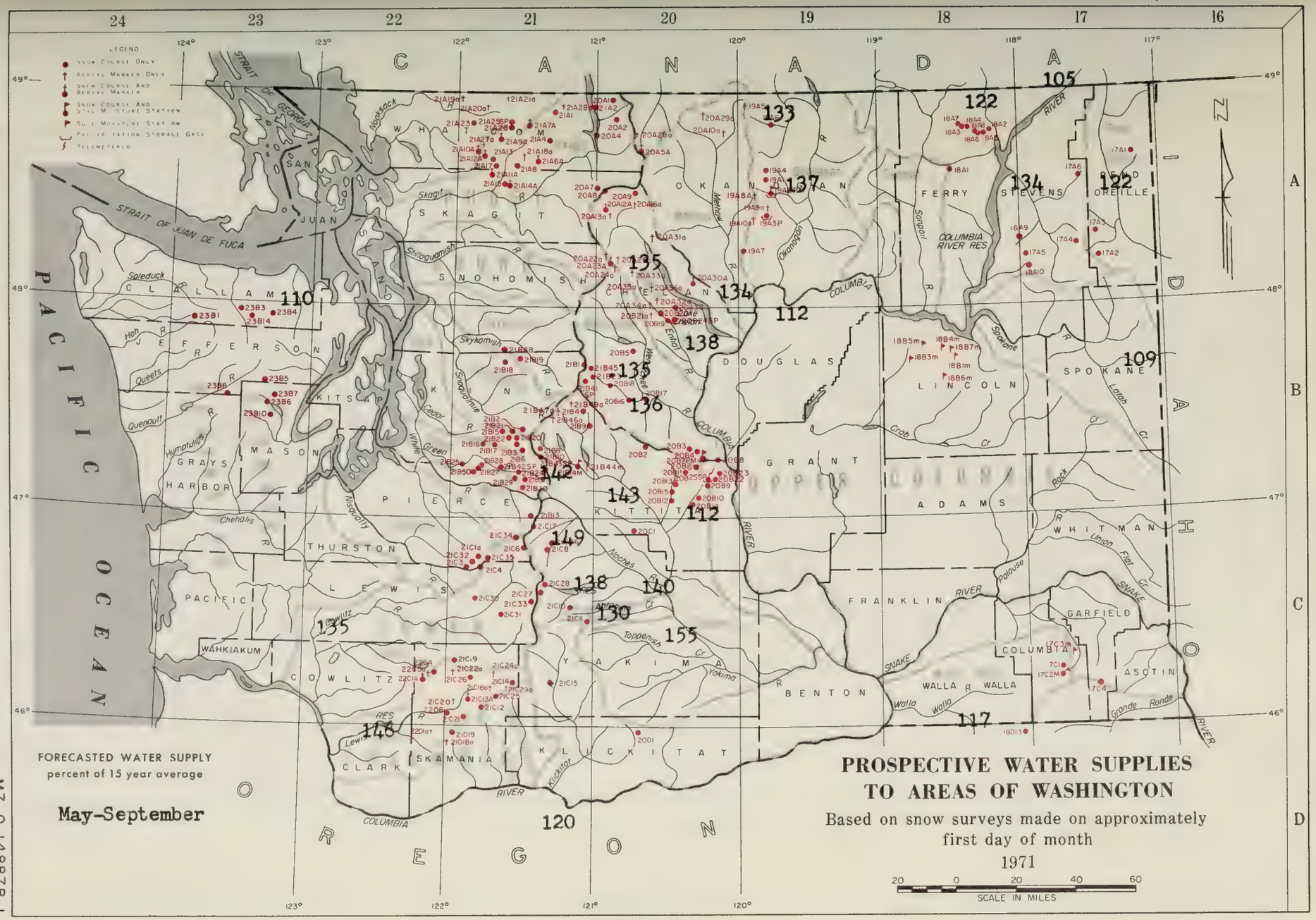
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
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PACIFIC
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COWLITZ
YAKIMA
BENTON
FRANKLIN
WALLA WALLA
COLUMBIA
GARFIELD
ASOTIN
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER RES
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120
FORECASTED WATER SUPPLY
percent of 15 year average
May-September
PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
1971
SCALE IN MILES
M7-0-14887B-L

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Punchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	20E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B4S	12	26N	19E	3700
Trinity #2	20B25SP	10	20N	20E	5310
Clockum Creek					
Colockum Creek	20B22	11	20N	20E	5300
Colockum Creek #2	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	42E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
May 1, 1971

* *

If the weather continues to give us alternate warm and cool spells the runoff in the state of Washington and from the tributary basins to the Colubmia River should cause no excessive problems this year. The cool weather during the month of April retarded snow melt and resulted in an increase, percentagewise, of the snowpack and in many cases even a build up of the water equivalent in the snowpack. The recent hot spell caused some rivers to reach a bank-full condition but this was followed by a cooling trend which permitted much of this runoff to slacken off and give the residents of the state some respite. If, on the other hand, it turns warm and stays that way and, also, if precipitation develops that is above normal, a situation similar to the 1948 high water could very well occur. The snow is still in the mountains and it still has to come out. The rate in which it comes out is totally dependent on subsequent weather conditions. The water supply picture for the state is good in all respects and all areas. There will be no isolated spots that should feel a water shortage during the 1971 irrigation season. Reservoirs are all down but this is done purposely to control expected high flows that are yet to come. Many of the reservoirs are being pulled at this time in anticipation of the above-normal spring melt runoff. The precipitation picture over the state, so far, shows that only in the northeastern portion of the state was there above-normal rainfall during April and the northeast drainage division was the only one that had rainfall that was more than 20% above normal.

Streamflows during the month were generally near normal with the Chehalis and the Yakima Rivers flowing in excess of 40% above normal and the Klickitat and the Columbia at The Dalles flowing near 20% above normal.

* *

SNOW COVER

A snow cover map is not prepared on the first of May because during normal years many of the snow courses at the lower elevations are reported to have no snow and then on years such as this the snow cover is present at these snow courses which gives a highly biased snow-water picture. In order to somewhat reduce this condition any snow course that had a snow cover greater than 200% was recorded as 200% of normal. Many of the snow courses measured in the state reached this point as of May 1. Even with this innovation this month the snow cover improved, percentagewise, over that which was reported last month. Only in isolated watersheds such

as the Kettle, Ahtanum, Green, and Skykomish was there a reduction in the snow cover percentage figures. This, also, was a result of fewer snow courses being measured in these watersheds than are measured on April 1. The snow cover now ranges from a low of 25% above normal for the Kettle River to a high of 83% above for the Snoqualmie River. In areas such as the Lewis River the low-elevation snow cover is as good or better than that occurring at the upper elevations while over the rest of the state there has been some melting at lower elevations but not to the extent as could normally be expected.

RESERVOIRS

Of all the reservoirs reported for the state of Washington only Banks Lake and the three reservoirs on the Skagit River have more than normal amounts of water in storage as of May 1. All other reservoirs that are used for power have been reduced to handle the expected high flows later in the runoff period; or, in the case of the small reservoirs in the Okanogan drainage, the carry-over was so low last year that these reservoirs are just trying to fill to satisfy the needs of water users. It is anticipated that all reservoirs will fill with the spring runoff and that a good carry-over can be expected into 1972.

PRECIPITATION

A review of the precipitation picture shows that below-normal rainfall occurred in the Columbia portion of the basin, in central Washington and in the central and northcentral portions of the state during the September and October period of last year. During the winter months of November through March there was a reversal with below-normal precipitation occurring only along the eastern boundary of the state. So far this spring the northeastern region of the state is the only area that received above-normal rainfall with all other areas reporting deficient precipitation--the lowest occurring in the central area which was 45% below normal.

STREAMFLOW

The runoff during April was similar to that which plagued us early this winter. The Similkameen River again had much below-normal runoff with the Okanogan being assisted by releases from Okanogan Lake. The Wenatchee and Chelans again had poor runoff while the Yakima experienced near normal flows. Along the main stem flows from Canada were 5% above normal and increased going down stream until The Dalles had a flow that was 16% above normal. Reports have reached us that the first five days in May, as a result of the high temperature regime over the total northwest, resulted in very high flows in all tributary streams but this was reduced by

a cooling trend which followed. Forecasts of streamflows range from 5% above normal for the Columbia River at Birchbank to a high of 55% above normal for the Yakima at Parker. These are for the May-September runoff period. Numerical forecasts are found following this narrative.

STREAMFLOW FORECASTS - MAY 1971

e following summarized runoff forecasts are based principally on mountain snow ver and on the assumption that precipitation and temperature will be near average om the present time to the end of the forecast period. Appreciable deviations om normal of temperature and/or precipitation will correspondingly modify these recasts. Streamflow figures for 1970 are preliminary and subject to revision.

sin, Stream d ation	Forecast Runoff 1971	% 15-Yr Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1970	1969	1968	15-Yr Average 1953-67
			COLUMBIA BASIN				
lumbia River System							
lumbia River at Birchbank 1/	45750	105	May-Sep	32981	44842	45987	43577
	39950	106	May-Jul	26324	35647	35293	37692
	25450	105	May-Jun	19376	27310	23482	24252
lumbia River at Grand Coulee 1/	70300	112	May-Sep	50757	62362	59748	62799
	58500	112	May-Jul	42646	53372	47649	52240
	44700	114	May-Jun	33631	42279	34147	39230
lumbia River bl Rock Island Dam 1/	77200	112	May-Sep	54688	67499	65842	68964
	63800	111	May-Jul	46321	58282	52947	57500
	48700	113	May-Jun	36747	46531	37870	43110
lumbia River at The Dalles, OR 1/	110900	120	May-Sep	79613	87847	81386	92456
	92800	120	May-Jul	67678	75516	64872	77330
	72200	121	May-Jun	54808	61607	47877	59690
nd Oreille River System							
nd Oreille River bl. Box Canyon	16900	122	May-Sep	13191	12406	11500	13863
	15400	122	May-Jul	12224	11294	9708	12644
	13050	123	May-Jun	10584	9272	8102	10619
ttle River System							
ttle River nr. Laurier	2030	122	May-Sep	1028	1747	1696	1667
	1920	122	May-Jul	997	1696	1565	1571
	1710	123	May-Jun	932	1556	1405	1393

/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

reamflow Forecasts - May 1971 (Cont.)

sin, Stream d ation	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1970	1969	1968	15-Yr Average 1953-67
ttle River System (Cont.)							
lville River at Kettle Falls	131	134	May-Sep	63	141	42	98
	115	134	May-Jul	54	127	33	86
	101	133	May-Jun	49	111	29	76
okane River System*							
okane River at Post Falls ID 2/	2300	109	May-Sep	2254	1952	1228	2120
	2200	109	May-Jul	2162	1862	1080	2025
	2070	110	May-Jun	2019	1749	985	1882
anogan River System **							
milkameen River nr. Nighthawk	1900	133	May-Sep	830	1116	1377	1431
	1780	134	May-Jul	789	1067	1287	1325
	1490	135	May-Jun	720	969	1086	1103
anogan River nr. Tonasket	2200	137	May-Sep	869	1296	1486	1609
	1980	137	May-Jul	810	1201	1348	1449
	1650	139	May-Jun	731	1079	1122	1190
ethow River System **							
ethow River nr. Pateros	1300	134	May-Sep	593	942	900	969
	1200	135	May-Jul	557	896	833	895
	1020	136	May-Jun	503	830	694	748
helan River System							
helan River at Chelan 3/	1580	138	May-Sep	850	1188	1149	1148
	1390	139	May-Jul	764	1080	993	1001
	1050	140	May-Jun	632	943	722	752
tehekin River at Stehekin	1120	135	May-Sep		868	815	827
	945	136	May-Jul		760	682	695
	702	138	May-Jun		654	482	509
enatchee River System							
enatchee River at Plain	1600	135	May-Sep	930	1269	1050	1183
	1420	135	May-Jul	852	1176	914	1053
	1100	137	May-Jun	715	1044	698	802

Forecasts made by Morland W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

* These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Couer d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

reamflow Forecasts - May 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr. Average 1953-67
chee River System							
enatchee River at Peshastin	2180	136	May-Sep	1293	1706	1381	1606
	1980	137	May-Jul	1195	1593	1210	1444
	1530	138	May-Jun	1009	1422	915	1108
Stemilt Basin nr. Wenatchee	140*	--	May-Sep		145*	140*	--
Yakima River System							
Yakima River nr. Martin 4/	168	142	May-Sep	105	128	80	118
	154	144	May-Jul	98	116	62	107
	128	146	May-Jun	89	108	56	88
Yakima River at Cle Elum 5/	1130	143	May-Sep		856	592	790
	1030	145	May-Jul		782	486	707
	858	147	May-Jun		717	403	584
Yakima River nr. Parker 6/	2025	155	May-Sep		1468	779	1308
	2020	156	May-Jul		1483	683	1292
	1810	157	May-Jun		1458	646	1153
Kachess River nr. Easton 7/	148	145	May-Sep	91	111	62	102
	139	146	May-Jul	88	106	52	95
	119	147	May-Jun	83	99	48	81
Cle Elum River nr. Roslyn 8/	580	140	May-Sep	379	422	321	415
	530	141	May-Jul	346	399	274	375
	435	144	May-Jun	295	366	227	303
Bumping River nr. Nile 9/	198	149	May-Sep	119	133	94	133
	182	150	May-Jul	111	125	82	121
	146	151	May-Jun	97	116	62	97
American River nr. Nile	160	143	May-Sep	119	121	88	112
	148	144	May-Jul	111	114	78	103
	120	145	May-Jun	97	104	67	83

* Thousands of Miners' Inches

4/ Observed flow corrected for storage in Lake Keechelus

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - May 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1970	1969	1968	15-Yr. Average 1953-67
Yakima River System (Cont.)							
Tieton River at Tieton Dam 10/	298	138	May-Sep	220	233	149	216
	248	137	May-Jul	186	203	116	181
	192	139	May-Jun	150	180	93	138
Naches River nr. Naches 11/	1047	140	May-Sep		820	512	748
	942	141	May-Jul		752	430	668
	782	143	May-Jun		683	357	547
Ahtanum Creeks nr. Tampico 12/	52	130	May-Sep		44	26	40
	46	131	May-Jul		40	22	35
	40	133	May-Jun		37	19	30
Lower Columbia River System							
Mill Creek nr. Walla Walla	21	117	May-Sep		19	10	18
	17	121	May-Jul		15	7	14
	14	117	May-Jun		13	5	12
Lewis River at Ariel 13/	1400	146	May-Sep	595	1164	908	956
	1180	148	May-Jul	501	982	630	796
	985	150	May-Jun	429	854	533	657
Cowlitz River at Castle Rock 14/	2860	135	May-Sep	1577	2290	1896	2120
	2450	137	May-Jul	1332	1966	1365	1789
	1965	138	May-Jun	1112	1684	1144	1426
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River nr. Sequim	169	110	May-Sep		172	121	153
	136	111	May-Jul		144	93	122
	100	116	May-Jun		116	65	86

10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (combined).
13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

he following tabulation of Washington stream basins presents the water content of he snow about May 1, 1971, as per cent of the same date in 1970 and 1969 and verage of record.

ributary Basin	No. of Courses Average	Years of Record	1971 Snow Water Expressed as per cent of		
			1970	1969	1953-67
		UPPER COLUMBIA BASIN			
Pend Oreille	10 - 14	7 - 34	118	129	136*
Kettle	9 - 10	8 - 33	122	132	125*
Spokane	5	7 - 34	131	141	133*
Okanogan	20 - 22	6 - 36	132	152	142*
Methow	4	10 - 29	132	144	160*
Chelan	1 - 2	10 - 39	166	124	133*
Entiat	8	4 - 6	177	155	--
Wenatchee	4 - 7	10 - 39	165	164	186*
Yakima	9 - 12	5 - 51	156	171	180*
		LOWER COLUMBIA			
Mill Creek	1	22	78	195	154*
Klickitat	1	13	200+	200+	--
White Salmon	2	27	191	146	174*
Lewis	13 - 17	10 - 27	186	168	182*
Cowlitz	1	8 - 31	130	131	167*
		PUGET SOUND			
White	1	15 - 31	161	155	164*
Green	1 - 3	10 - 25	157	145	130*
Snoqualmie	1	3 - 25	173	166	183*
Skykomish	1 - 2	13 - 25	146	134	145*
Skagit	10 - 11	20 - 39	180	174	172*
Baker	7 - 10	13	180	155	133*
Nooksack	1	3	156	121	--
		OLYMPIC PENINSULA			
Elwha	1	19	200+	124	157*
Dungeness	1	19	185	135	152*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

ASIN or TREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (May) 1971	1970	1969	Noraml*
		COLUMBIA				
pokane	Coeur d'Alene Lake	225.1	281.3	149.5	441.8	299.9
olumbia	Franklin D. Roosevelt Lake	5232.0	743.6	538.5	-1864.1	2444.9
olumbia	Banks Lake	761.8	543.1	648.0	581.3	409.7
kanogan	Conconully Reservoir	13.0	7.4	8.1	6.6	7.6
kanogan	Salmon Lake	10.5	3.0	7.6	7.6	8.7
helan	Lake Chelan	676.1	192.6	74.3	229.1	210.0
		YAKIMA				
akima	Keechelus Lake	157.8	98.4	99.3	107.9	120.6
achess	Kachess Lake	239.0	166.2	196.2	193.0	202.4
le Elum	Lake Cle Elum	436.9	238.0	216.9	323.4	323.2
umping	Bumping Lake	33.7	3.8	7.7	7.7	20.1
ieton	Rimrock Lake	198.0	112.2	119.5	165.6	154.1
		PUGET SOUND				
kagit	Ross Reservoir	1202.9	775.9	541.0	546.5	695.4
kagit	Diablo Reservoir	90.6	88.4	86.4	87.0	85.2
kagit	Gorge Reservoir	9.8	8.5	8.0	8.0	--

1/ Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - MAY

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of May 1 1971	1970	1969
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	10.2	10.4	10.3
Krause	18B4m	2440	48	13.6	9.7	9.2	9.4
Sheffels	18B5m	2360	48	13.6	9.5	8.7	8.3
Sherman	18B7m	2440	48	13.6	8.8	8.9	8.6
Theatridge	18B6m	2200	48	13.6	10.4	9.6	9.5
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	3.8	3.7	3.7
Trout Creek	3-M	3600	48	7.3	3.8*	--	5.3
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	4.8	5.6	--
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2	--
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.0	10.4	10.9
Helmers	17C2M	4400	48	12.0	10.2	10.5	11.2
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	11.4	6.3	6.5

* April 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Oct. 1 1970	1969	1968
CRAB CREEK							
Jack Woods	18B3m	2600	48	13.6	7.0	7.5	7.1
Krause	18B4m	2440	48	13.6	4.4	5.9	5.2
Sheffels	18B5m	2360	48	13.6	4.4	4.5	4.9
Sherman	18B7m	2440	48	13.6	3.8	4.2	3.9
Theatridge	18B6m	2200	48	13.6	7.8	5.4	4.6
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	1.7	2.7	2.7
Trout Creek	3-M	3600	48	7.3	3.4*	3.8*	4.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	2.4	--	3.1
Lake Cle Elum	21B14M	2200	48	12.8	7.6	--	5.2
WALLA WALLA							
Couse	17C3m	3650	48	11.1	5.9	6.1	7.4
Helmers	17C2M	4400	48	12.0	7.3	7.1	7.6
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	5.1	9.8	5.5

* Nov. 1 measurement

PRECIPITATION 1/

Division Averages and Departures

AINAGE /ISIONS	FALL Sept-Oct 1970 2/		WINTER Nov. '70 - Mar. '71 2/		SPRING April '71 2/	
	Observed	Departure	Observed	Departure	Observed	Departure
lumbia in Canada	3.64	-0.25	15.63	+2.94	1.30	-0.08
nd Oreille - Spokane	4.30	+0.42	19.87	+1.62	2.35	+0.02
rtheastern Washington	3.16	+0.91	11.07	-0.02	1.83	+0.40
utheastern Washington	3.59	+0.94	12.11	-0.30	1.55	-0.33
ntral Washington	3.05	-1.39	33.80	+6.67	1.22	-0.99
rth Central Washington	1.36	-0.05	8.22	+1.88	0.68	-0.09
rthwest Slope Cascades	12.29	+0.62	63.74	+11.60	3.78	-2.13
uthwest Slope Cascades	7.74	+0.02	52.21	+11.34	3.07	-1.26

rtheastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

utheastern Washington - Touchet, Tucannon and Palouse drainages.

ntral Washington - Yakima, Wenatchee and Chelan drainages.

rth Central Washington - Methow and Okanogan drainages.

rthwest Slope Cascades - Puget Sound drainages.

uthwest Slope Cascades - Lower Columbia drainages.

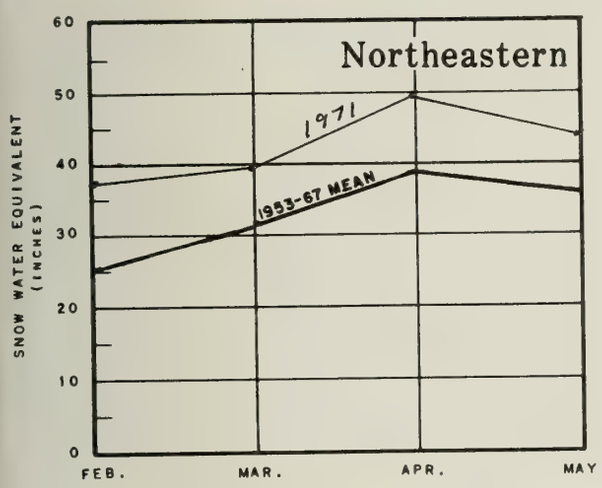
1 - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau.

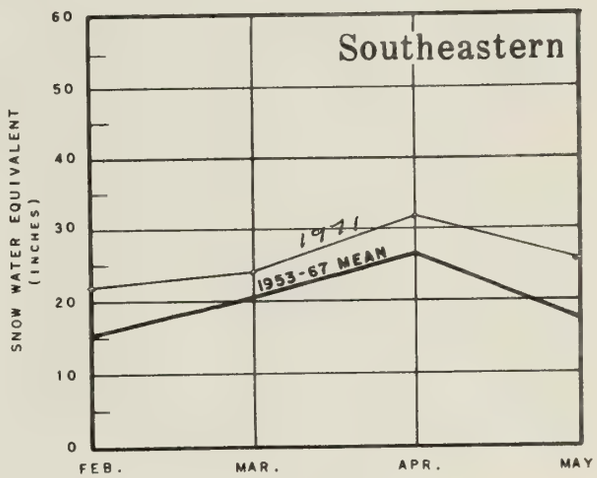
2 - Departure from 15-year (1953-67) drainage division average.

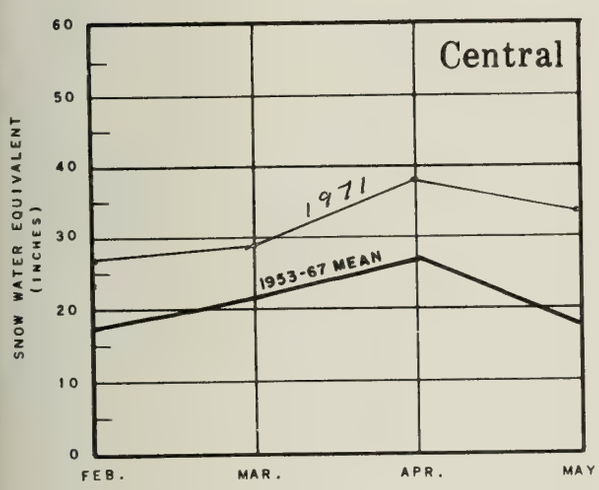
WASHINGTON SNOW COVER

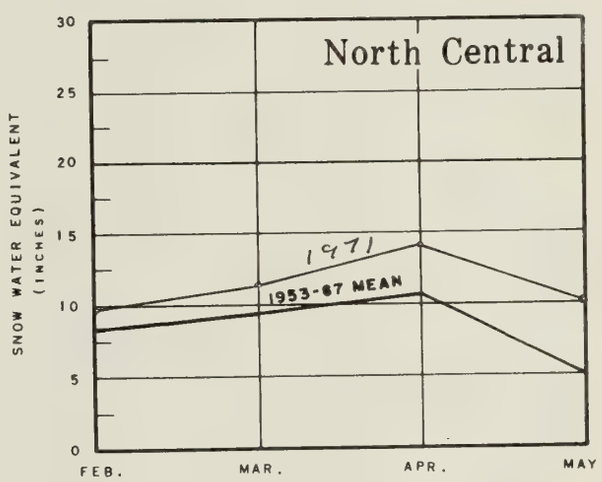
1971

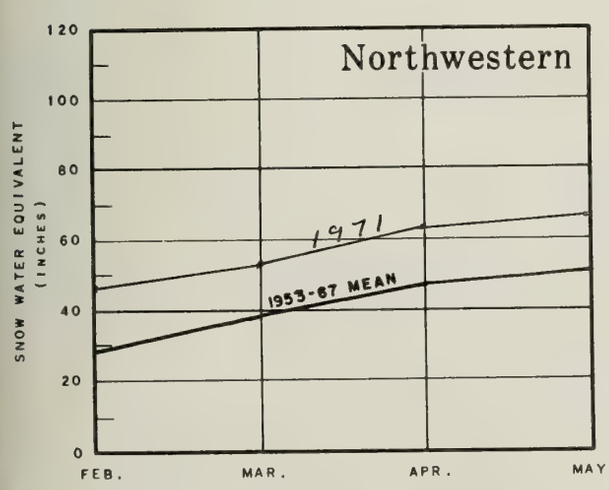
DRAINAGE AREAS

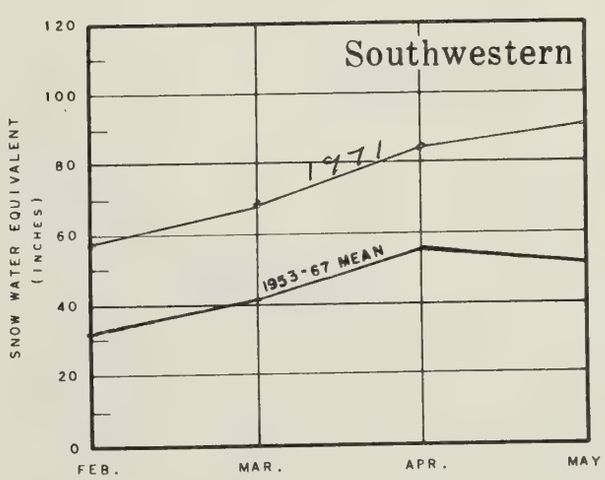










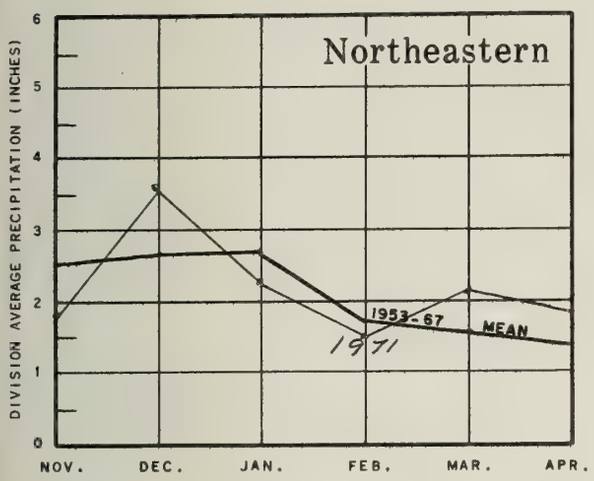


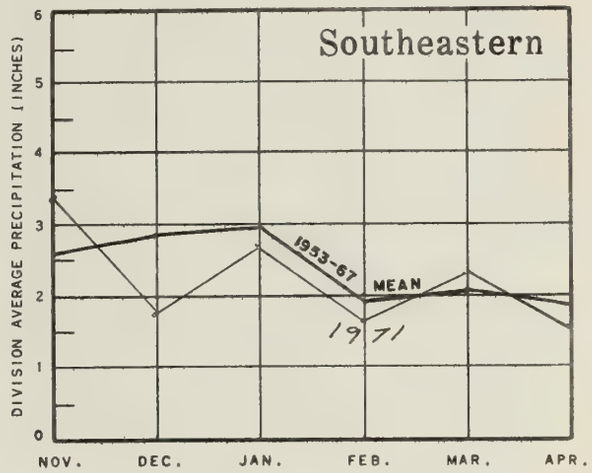
Selected Snow Survey Courses by Soil Conservation Service

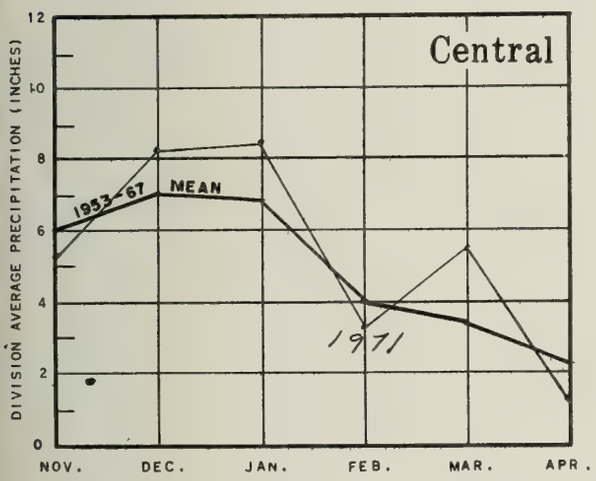
WASHINGTON VALLEY PRECIPITATION

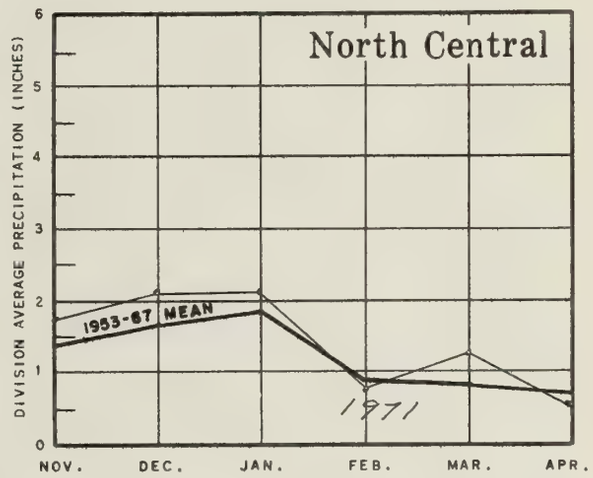
1970-1971

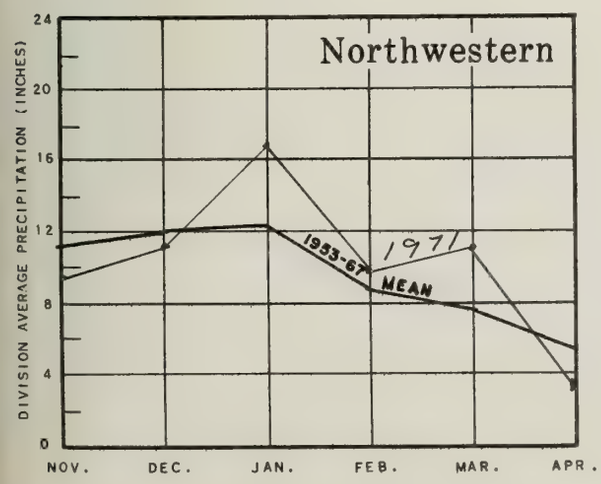
DRAINAGE AREAS

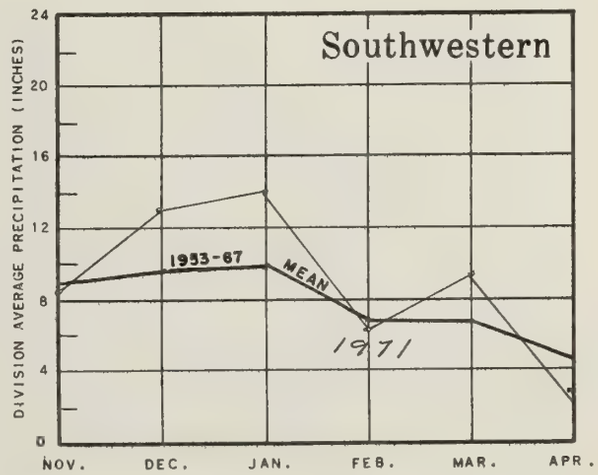












Preliminary Analysis by U. S. Weather Bureau

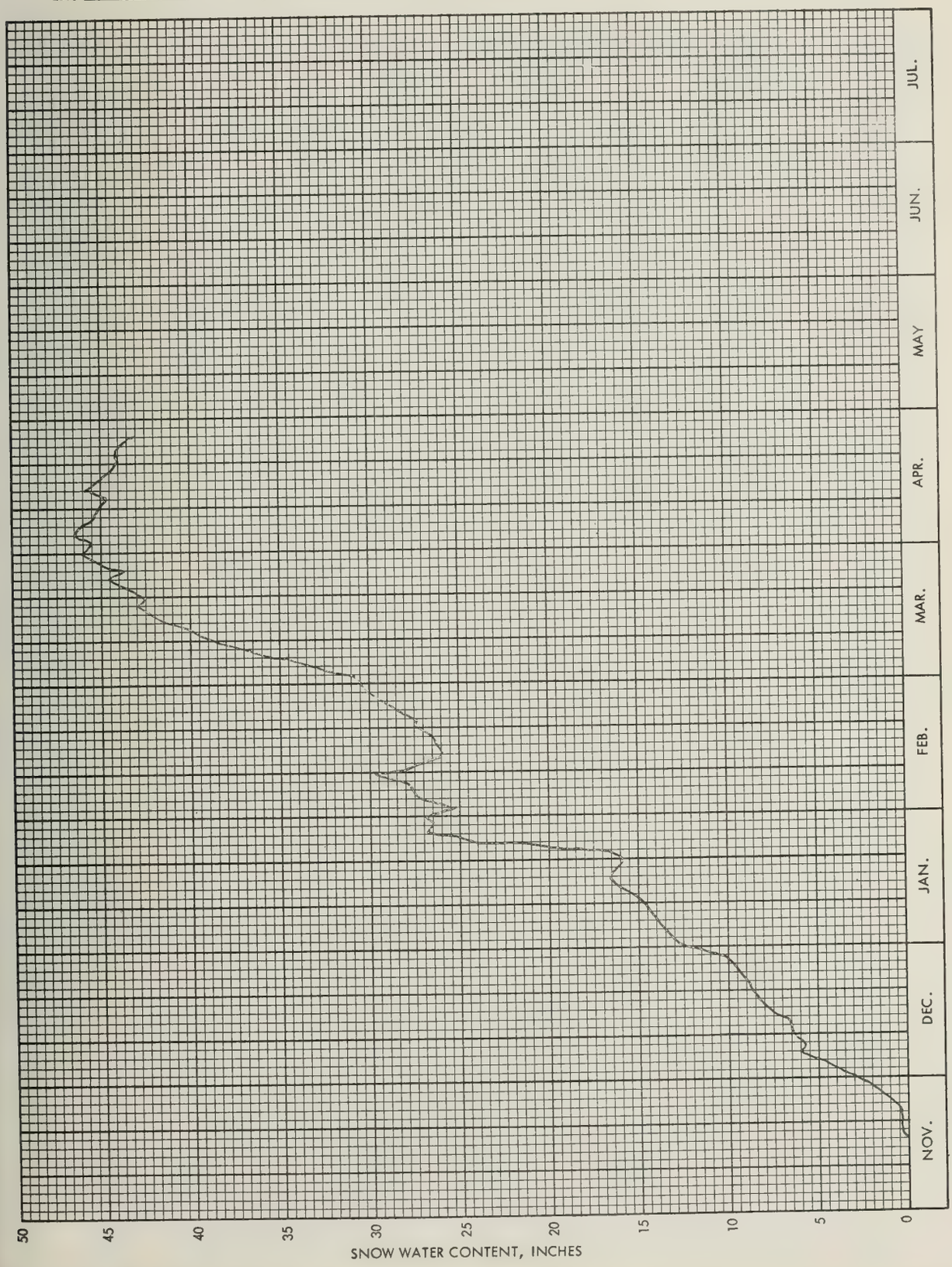
1970 - 71

SNOW PILLOW DATA

Cougar Mountain - FS

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



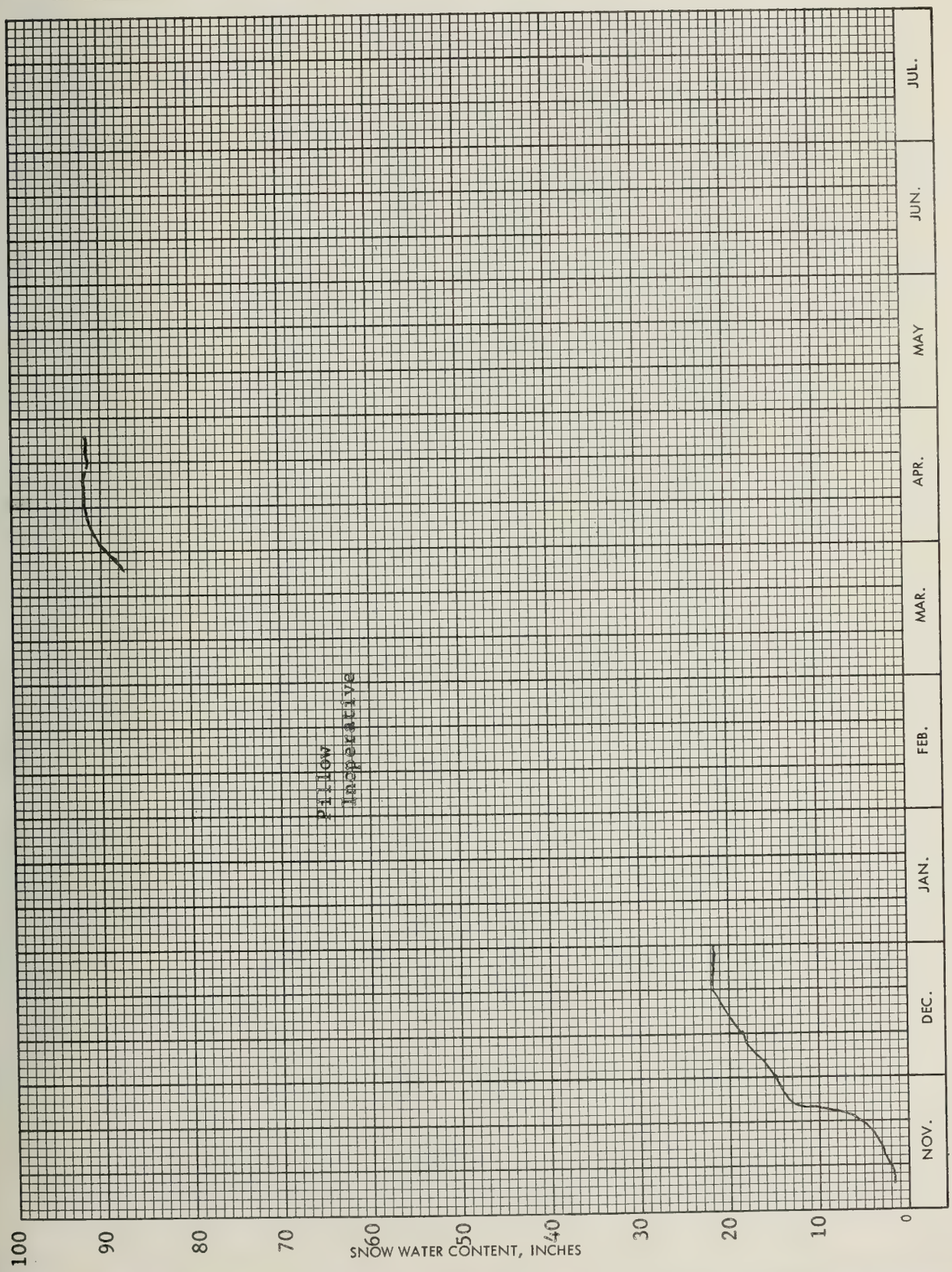
1970 - 71

SNOW PILLOW DATA

Snowshoe Butte - FS

Sec. 14 T. 20N R. 11E No. 21B43SP Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 4800'



WSFB-X4-N

APPENDIX 1
SNOW DATA APRIL 1 to MAY 1, 1971

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	4/30	129	59.4	49.2	48.4
Baree Midway	15B16	4600	4/30	81	38.5	41.1	--
Baree Trail	15B15	3800	4/30	0	0.0	8.7	1.0*
Benton Meadow	16A2	2344	Not Measured			0.0	0.0
Benton Spring	16A3	4900	4/29	40	16.7	20.6	17.1
Boyer Mountain	17A2	5250	4/28	66	30.4	26.8	25.2
Brush Creek	14A4	5000	4/27	31	10.0	13.2	10.8
Bunchgrass Meadow	17A1	5000	4/28	65	29.1	28.5	30.4
Heart Lake Trail	14C10	4800	4/27	65	29.5	24.3	17.2*
Hoodo Basin	15C10	6000	4/27	146	68.8	56.5	--
Hoodo Creek	15C1	6200	4/27	143	66.1	53.2	52.0
Lookout	15B2	5250	4/15	118	48.7	39.9	--
			4/30	104	44.5	42.4	36.7
Nelson	Canada	3050	4/30	27	11.6	8.0	6.1**
Schweitzer Bowl	16A6	4500	4/28	71	34.0	29.3	--
Schweitzer Ridge	16A5	6100	4/28	128	58.5	43.3	--
Smith Creek	16A1	4800	4/26	127	54.9	37.9	49.4
Winchester Creek	17A3	2970	4/28	15	6.9	5.0	0.5*
KETTLE RIVER							
Barnes Creek	Canada	5500	4/28	52	23.7	17.4	20.8**
Big White Mountain	Canada	5500	4/30	63	25.6	17.8	20.3**
Boulder Road	18A2	1450	4/26	0	0.0	0.0	--
Butte Creek	18A3	4070	4/26	22	8.3	8.0	5.5*
Cabin Creek	18A8	3170	4/26	14	6.3	3.5	--
Carmi	Canada	4100	4/30	6	1.9	2.8	1.3**
Farron	Canada	4000	4/30	33	12.7	9.7	9.6**
Goat Creek	18A4	3595	4/26	0	0.0	0.0	--
Lower Trapping Creek	Canada	3050	4/30	0	0.0	0.0	--
#Monashee Pass	Canada	4500	4/28	35	14.2	10.3	13.7**
Old Glory Mountain	Canada	7000	5/1	82	37.1	27.6	29.4**
Snow Caps Creek	18A5	2150	4/26	0	0.0	0.0	--
Snow Caps Trail	18A6	2720	4/26	0	0.0	0.0	--
Summit G. S.	18A7	4600	4/26	22	7.9	8.4	6.3*
Upper Trapping Creek	Canada	5500	4/30	19	5.8	6.7	5.8**
SPOKANE RIVER							
Copper Ridge	16B2	4800	4/29	57	26.2	31.2	27.8
Forty-nine Meadows	15B3	5000	4/26	95	45.8	34.2	31.4*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 2

IOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
SPOKANE RIVER (Cont.)							
ourth of July Summit	16B3	3100	4/30	0	0.0	0.0	--
Granite Peak	15B13A	6000	4/26	144	63.8	47.4	--
ookout	15B2	5250	4/15	118	48.7	39.9	--
			4/30	104	44.5	42.4	36.7
ost Lake	15B14A	6000	4/26	177	82.0	58.0	62.7*
ower Sands Creek	16B1	3400	4/29	49	20.6	19.9	14.6
edicine Ridge	15B4A	6150	4/26	147	63.0	45.8	--
utlaw Creek	15B12A	3750	4/26	0	0.0	--	--
herwin	16C1	3200	5/1	20	8.2	9.4	--
OKANOGAN RIVER							
berdeen Lake	Canada	4300	5/3	0	0.0	3.7	1.6**
lackwall Peak	Canada	6260	4/30	112	54.2	32.9	36.2**
ouleau Creek	Canada	5000	4/29	32	11.4	9.9	8.1**
renda Mine	Canada	4800	4/28	26	11.1	8.6	--
rookmere	Canada	3200	4/25	36	13.8	6.4	5.5**
arrs Landing Lower	Canada	2250	4/27	0	0.0	0.0	--
arrs Landing Upper	Canada	3200	4/27	0	0.0	0.0	--
lark +	19A8a	7000	4/30	69	28.3	--	--
nderby	Canada	6250	4/26	121	50.0	40.9	41.8**
reezeout Meadows	20A2	5000	4/27	129	61.1	29.4	31.6
amilton Hill	Canada	4900	5/1	42	17.7	14.5	11.4**
arts Pass	20A5A	6500	4/26	143	65.8	41.7	49.8
sintok Lake	Canada	5510	5/1	24	7.7	5.6	6.0**
ost Horse Mountain	Canada	6300	4/30	42	14.5	10.0	9.6**
oup Loup	19A7	4650	4/28	26	10.4	--	--
ower Esperon Creek	Canada	4270	4/25	43	15.0	--	--
cCulloch	Canada	4200	4/29	8	2.7	4.6	2.8**
iddle Esperon Creek	Canada	4580	4/25	50	21.7	--	--
issezula Mountain	Canada	5100	Late Report			--	4.5**
ission Creek	Canada	6000	4/28	64	24.4	18.3	21.4**
onashee Pass	Canada	4500	4/28	35	14.2	10.3	13.7**
ount Kobau	Canada	5950	4/30	46	17.4	12.6	13.4**
uckamuck +	19A9a	6390	4/30	56	23.0	--	--
utton Creek No. 1	19A1	5700	4/28	42	17.1	13.9	10.0
utton Creek No. 2	19A4	6000	4/28	52	20.7	15.4	15.1
ew Copper Mountain	Canada	4300	4/30	4	1.9	--	--
ickel Plate Mountain	Canada	6200	4/27	34	10.1	7.5	8.3**
ostill Lake	Canada	4500	4/29	24	8.2	7.9	6.7**
usty Creek	19A3	4000	4/28	0	0.0	0.0	1.3*
almon Meadows	19A2	4500	4/28	26	10.0	8.8	5.0
ilver Star Mountain	Canada	6050	5/2	73	33.5	24.5	27.0**

/ Not located directly on this drainage
/* Adjusted 1953-67 average
/** Average for years of record
/+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

SDA-SCS-PORTLAND, OREG. 1970

APPENDIX 3

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
OKANOGAN RIVER (Cont.)							
Starvation Mountain	19A10a	6750	4/30	66	27.1	--	--
Summerland Reservoir	Canada	4200	5/2	22	8.6	5.3	6.1**
Trout Creek	Canada	4700	4/26	24	7.2	6.2	4.8**
Upper Esperon Creek	Canada	5290	4/25	59	25.0	--	--
White Rocks Mountain	Canada	6000	4/28	67	30.6	--	--
METHOW RIVER							
Harts Pass	20A5A	6500	4/26	143	65.8	41.7	49.8
Loup Loup	19A7	4650	4/28	26	10.4	--	--
#Mutton Creek No. 1	19A1	5700	4/28	42	17.1	13.9	10.0
#Mutton Creek No. 2	19A4	6000	4/28	52	20.7	15.4	15.1
#Rusty Creek	19A3	4000	4/28	0	0.0	0.0	1.3*
#Salmon Meadows	19A2	4500	4/28	26	10.0	8.8	5.0
CHELAN LAKE BASIN							
Rainy Pass	20A9	4780	4/26	126	58.4	36.4	43.9
Safety Harbor	20A30A	6300	4/27	100	39.5	22.9	--
ENTIAT RIVER							
Brief	20B19	1600	4/27	0	0.0	0.0	0.0*
Entiat Meadows +	20A33a	4800	4/13	162	64.8	--	--
			4/28	122	55.5	26.6	--
Entiat River Trail +	20A34a	3150	4/13	72	31.0	--	--
			4/28	46	22.3	7.4	--
Fox Camp +	20A36a	6510	4/13	182	72.8	--	--
			4/28	182	82.8	47.4	--
Pope Ridge	20B20	4300	4/14	62	26.4	11.0	--
			4/30	38	18.5	9.4	--
Pugh Ridge +	20A32a	6400	4/13	121	48.4	--	--
			4/28	106	48.2	30.0	--
Shady Pass	20A37	5000	4/29	83	37.4	22.8	--
Snow Brushy +	20A35a	3850	4/13	135	54.0	--	--
			4/28	103	46.9	22.6	--
Tommy Creek +	20B21a	5300	4/13	85	34.0	--	--
			4/28	68	31.0	25.9	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	4/29	82	41.7	25.5	18.2*
Berne-Mill Creek New	21B41SP	3240	4/29	67	34.2	23.0	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
WENATCHEE RIVER (Cont.)							
Blewett Pass No. 2	20B2	4270	4/13	48	22.5	17.5	12.1*
			4/29	38	19.7	17.1	8.9*
Chiwaukum G. S.	20B16	1810	4/29	21	8.8	0.0	--
#Fish Lake	21B4	3371	4/26	102	55.1	27.4	24.1
Lake Wenatchee	20B5	1970	4/29	21	9.8	0.0	--
Leavenworth R. S.	20B17	1127	4/27	0	0.0	0.0	--
Merritt	20B18	2140	4/29	31	15.2	3.8	--
Stevens Pass	21B1	4070	4/15	165	74.2	50.1	55.7*
			4/29	152	77.8	55.5	53.5
Stevens Pass Sand Shed	21B45	3700	4/15	115	53.0	32.6	--
			4/29	105	54.9	36.0	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	4/26	11	4.8	6.7	--
Scout-A-Vista	20B4	3400	4/26	5	2.0	0.0	--
STEMILT CREEK							
Jump-Off	20B8	4450	4/27	18	7.4	7.8	--
Stemilt Slide	20B6	5000	4/27	33	15.3	12.4	4.0*
Upper Wheeler	20B7	4400	4/27	9	3.7	4.4	--
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	4/28	34	16.0	17.5	--
Colockum Creek Lower	20B23	4300	4/28	17	7.0	8.2	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	4/26	0	0.0	--	0.0*
Big Boulder Creek	21B9	3200	4/26	56	26.4	14.6	5.0*
#Blewett Pass No. 2	20B2	4270	4/13	48	22.5	17.5	12.1*
			4/29	38	19.7	17.1	8.9
Bumping Lake	21C8	3450	4/16	62	28.2	--	13.3*
			5/3	42	20.9	19.2	9.3
Bumping Lake New	21C36	3400	4/16	74	33.8	--	--
			5/3	54	27.0	19.6	--
Fish Lake	21B4	3371	4/26	102	55.1	27.4	24.1*
Lake Cle Elum	21B14M	2200	4/14	0	0.0	--	--

Not located directly on this drainage
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
YAKIMA RIVER (Cont.)							
Joe Lake +	21B46a	4624	Marker down				
Lemah Creek +	21B47a	3327	4/26	123	57.8	35.6	--
Morse Lake	21C17	5400	4/29	207	102.6	63.8	62.4*
#Olallie Meadows	21B2	3625	4/13	181	80.0	44.1	51.0*
			4/26	167	88.0	51.0	48.1*
#Satus Pass	20D1	4030	4/29	30	13.0	0.0	--
#Stampede Pass	21B10	3000	4/15	168	70.6	36.6	48.6
			5/3	130	59.8	45.5	46.0
Tunnel Avenue	21B8	2450	4/14	85	35.3	--	--
			4/28	70	32.3	17.2	17.4
Waptus Lake +	21B49a	3024	4/26	126	59.2	34.3	--
White Pass (E. Side)	21C28	4500	4/14	94	41.6	--	27.8*
			4/30	85	40.1	29.1	26.2*
White Pass (L. Lake)	21C27	4500	4/14	102	47.2	--	--
			Not Measured			35.8	28.0*
Van Epps Pass +	20B26a	5925	4/26	171	80.4	New Marker	
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	4/26	0	0.0	--	0.0*
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	4/28	58	26.5	29.5	--
MILL CREEK							
Tollgate	18D3M	5070	4/27	56	26.9	34.3	17.5
KLICKITAT RIVER							
Satus Pass	20D1	4030	4/29	30	13.0	0.0	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	4/29	162	78.6	43.2	47.8*
#Surprise Lakes	21C13A	4250	4/29	180	92.7	45.1	50.5
WIND RIVER							
Old Man Pass	21D19	3100	4/28	85	42.0	2.9	11.4

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 6

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
LEWIS RIVER							
Blue Lake +	21C22a	4800	4/29	282	141.0	86.4	90.1*
Bob's Trail	21C21	2200	4/28	56	26.3	0.6	5.7*
Calamity Ridge +	22D1a	2500	4/28	24	10.8	0.4	--
Council Pass +	21C18a	4200	4/29	136	68.0	38.4	35.7*
Cultus Creek	21C12	4000	4/29	162	78.6	43.2	47.8
Divide Meadow +	21C29a	5600	4/29	189	94.5	62.4	61.6*
Grand Meadow	21C25	3500	4/29	85	42.3	16.6	22.2*
Lone Pine Shelter	21C26	3800	4/26	172	83.4	33.6	45.3*
Marble Mountain +	22C5a	3200	4/26	156	84.2	5.6	--
New Muddy River	22C6	1400	4/28	15	6.7	0.0	--
Old Man Pass	21D19	3100	4/28	85	42.0	2.9	11.4
Plains of Abraham +	22C1a	4400	4/26	246	123.0	94.5	73.8*
Smith Creek Road	22C4	2100	4/28	61	30.7	0.0	--
Spencer Meadow +	21C20a	3400	4/28	92	42.3	3.2	13.0*
Surprise Lakes	21C13A	4250	4/29	180	92.7	45.1	50.5*
Table Mountain +	21C24a	4200	4/29	162	81.0	48.0	44.7*
Timbered Peak +	21D18a	3000	4/28	66	30.8	2.0	12.3*
COWLITZ RIVER							
Pigtail Peak	21C33	5900	4/14	209	103.2	--	--
			Not Measured			67.5	--
Plains of Abraham +	22C1a	4400	4/26	246	123.0	94.5	73.8*
White Pass (E. Side)	21C28	4500	4/14	94	41.6	--	27.8*
			4/30	85	40.1	29.1	26.2*
White Pass (L. Lake)	21C27	4500	4/14	102	47.2	--	--
			Not Measured			35.8	28.0*
PUGET SOUND DRAINAGE							
WHITE RIVER							
Morse Lake	21C17	5400	4/29	207	102.6	63.8	62.4
GREEN RIVER							
Cougar Mountain SP	21B42SP	3200	4/26	68	35.0	18.6	--
Snowshoe Butte SP	21B43SP	5000	4/26	188	91.8	60.0	--
Stampede Pass	21B10	3000	4/15	168	70.6	36.6	48.6
			5/3	130	59.8	45.5	46.0

Not located directly on this drainage
+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

USDA-SCS-PORTLAND, OREG. 1970

++ 1953-1967 period

APPENDIX 7

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ++
SNOQUALMIE RIVER							
Olallie Meadows	21B2	3625	4/13	181	80.0	44.1	51.0*
			4/26	167	88.0	51.0	48.1*
SKYKOMISH RIVER							
Stevens Pass	21B19	4070	4/15	165	74.2	50.1	55.7*
			4/29	152	77.8	55.5	53.5
Stevens Pass Sand Shed	21B45	3700	4/15	115	53.0	32.6	--
			4/29	105	54.9	36.0	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	4/27	49	24.3	0.0	5.6*
Beaver Pass	21A1	3680	4/27	121	59.9	27.0	35.0
Brown Top +	21A28a	6000	4/27	196	91.0	57.6	--
Devils Park	20A4	5900	4/26	134	60.8	41.5	49.2
Freezeout Cr. Trail	20A1	3500	4/27	51	22.3	10.1	8.3
Freezeout Meadows	20A2	5000	4/27	129	61.1	29.4	31.6
Granite Creek		3500	4/26	58	27.4	New Course	
Harts Pass	20A5A	6500	4/26	143	65.8	41.7	49.8
Lake Hozomeen	21A2	2600	4/27	45	19.5	4.0	5.8
Meadow Cabins	20A8	1900	4/26	12	6.4	0.0	2.0*
Rainy Pass	20A9	4780	4/26	126	58.4	36.4	43.9
Thunder Basin	20A7	4200	4/26	85	36.1	23.2	26.9*
BAKER RIVER							
Baker Pass	21A27a	4900	Not Measured			69.3	--
						82.8	--
Dock Butte	21A11A	3800	4/18	250	110.0	49.6	86.4*
			4/28	220	107.2	58.6	87.1*
Easy Pass	21A7A	5200	4/18	236	103.8	68.5	--
			4/29	236	113.7	85.2	107.4*
Jasper Pass	21A6A	5400	4/18	300	132.0	86.5	102.6*
			4/29	268	129.2	81.4	113.6*
Komo Kulshan	21A17	800	4/28	14	6.8	0.0	--
Marten Lake	21A9A	3600	4/18	255	112.2	59.6	92.3*
			4/29	229	111.3	69.5	93.3*
Mount Blum	21A18a	5800	4/18	187	82.3	68.9	--
			4/29	173	83.0	72.9	--
Panorama New	21A26	4300	4/15	240	105.5	66.2	--
			4/30	220	107.8	69.3	--

Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

++ 1953-1967 period

USDA-SCS-PORTLAND, OREG. 1970

APPENDIX 8

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average++
BAKER RIVER (Cont.)							
Rocky Creek	21A12A	2100	4/18	126	55.4	1.5	31.8*
			4/28	114	56.0	7.1	20.4*
Schreibers Meadow	21A10A	3400	4/18	199	95.5	44.5	70.5*
			4/28	191	101.8	55.0	73.7*
S. F. Thunder Creek	21A14A	2200	4/18	23	10.1	0.0	--
			4/28	22	10.3	0.0	--
Sulphur Creek	21A13	1600	4/28	56	27.3	0.0	--
Three Mile Creek	21A8A	4500	4/28	0	0.0	0.0	--
Watson Lakes	21A8A	4500	4/18	250	110.0	--	79.7*
			4/29	222	107.4	60.6	83.6*
NOOKSACK RIVER							
Panorama New	21A26	4300	4/15	240	105.5	66.2	--
			4/30	220	107.8	69.3	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	4/26	82	36.9	19.9	24.3*
MORSE CREEK							
Cox Valley	23B14	4500	4/29	146	68.3	38.1	--
ELWHA RIVER							
Hurricane	23B3	4500	4/27	104	44.0	17.9	28.0*

* Adjusted 1953-67 average

++ 1953-1967 period

DA-SCS-PORTLAND, OREG. 1970

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
SKYKOMISH RIVER							
#Stevens Pass	21B01	4070	5/14	128	68.1	51.2	46.6
			5/28	107	58.6	39.6	31.2
#Stevens Pass S. Shed	21B45	3700	5/14	69	34.5	25.2	22.2
			5/28	42	24.7	13.3	--
SNOQUALMIE RIVER							
Olallie Meadows	21B02	3625	5/27	120	66.3	--	--

Not located directly on this drainage
* Adjusted 1953-67 average

+ 1953-1967 p

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
ENTIAT RIVER (Cont.)							
Pugh Ridge +	20A32a	6400	5/13	61	30.3	--	--
			5/28	47	24.9	18.5	--
Shady Pass	20A37	5000	5/14	40	19.6	21.0	--
Snow Brushy +	20A35a	3850	5/13	61	30.3	--	--
			5/28	29	16.2	10.0	--
Tommy Creek +	20B21a	5300	5/13	26	12.9	--	--
			5/28	5	2.8	7.0	--
WENATCHEE RIVER							
Stevens Pass	21B01	4070	5/14	128	68.1	51.2	46
			5/28	107	58.6	39.6	31
Stevens Pass S. Shed	21B45	3700	5/14	69	34.5	25.2	-
			5/28	42	24.7	13.3	-
YAKIMA RIVER							
Bumping Lake	21C08	3450	5/14	20	10.5	--	-
Bumping Lake New	21C36	3400	5/14	32	16.9	--	-
#Olallie Meadows	21B02	3625	5/27	120	66.3	--	-
#Stampede Pass	21B10	3000	5/16	110	57.2	43.8	-
			5/31	77	42.4	21.3	18
White Pass (E. Side)	21C28	4500	5/17	67	31.6	--	23
			Late Report			--	12
White Pass (L. Lake)	21C27	4500	5/17	65	31.5	--	-
COWLITZ RIVER							
Pigtail Peak	21C33	5900	5/17	179	93.8	--	-
#White Pass (E. Side)	21C28	4500	5/17	67	31.6	--	2
			Late Report			--	1
#White Pass (L. Lake)	21C27	4500	5/17	65	31.5	--	-
PUGET SOUND DRAINAGE							
GREEN RIVER							
Cougar Mountain	21B42SP	3200	5/26	9	5.2	--	
Snowshoe Butte	21B43SP	5000	5/27	145	76.6	--	
Stampede Pass	21B10	3000	5/16	110	57.2	43.8	3
			5/31	77	42.4	21.3	1

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

++ 1953-1967

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inche	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Avera
OKANOGAN RIVER (Cont.)							
Brenda Mine	Canada	4800	5/12	0	0.0	0.0	0
			5/25	0	0.0	0.0	0
Carrs Landing Lower	Canada	2250	5/15	0	0.0	0.0	0
			Not Measured			0.0	0
Carrs Landing Upper	Canada	3200	5/15	0	0.0	0.0	0
			Not Measured			0.0	0
Enderby	Canada	6250	5/27	90	38.3	--	40
Hamilton Hill	Canada	4900	5/14	13	6.7	9.8	
			5/29	0	0.0		
Isintok Lake	Canada	5510	5/15	3	1.0	4.2	
Lost Horse Mountain	Canada	6300	5/14	23	8.1	8.8	
			5/31	12	4.2	--	
Lower Esperon Creek	Canada	4270	5/12	0	0.0	--	
McCulloch	Canada	4200	5/14	0	0.0	0.0	
Middle Esperon Creek	Canada	4580	5/12	11	4.6	--	
Missezula Mountain	Canada	5100	5/14	0	0.0	--	
Mission Creek	Canada	6000	5/14	42	17.5	16.2	
			5/28	33	15.3	10.5	1
Monashee Pass	Canada	4500	6/2	0	0.0	0.0	
Mount Kobau	Canada	5950	5/14	23	9.7	10.0	
			5/31	3	1.1	0.8	
Nickel Plate Mountain	Canada	6200	5/14	14	4.9	--	
			5/30	8	2.3	--	
Silver Star Mountain	Canada	6050	5/16	54	22.5	19.9	2
			5/31	29	13.9	9.3	1
Summerland Reservoir	Canada	4200	5/15	2	0.7	1.1	
Trout Creek	Canada	4700	5/11	2	0.7	2.6	
Upper Esperon Creek	Canada	5290	5/12	26	13.3	--	
ENTIAT RIVER							
Entiat Meadows +	20A33a	4800	5/13	96	47.6	--	
			5/28	62	32.9	27.0	
Entiat River Trail +	20A34a	3150	5/13	12	6.0	--	
			5/28	0	0.0	--	
Fox Camp +	20A36a	6510	5/13	140	69.4	--	
			5/28	128	67.8	36.0	
Pope Ridge	20B20	4300	5/12	5	2.5	0.0	
			5/28	0	0.0	--	

\+ Snow water equivalent estimated from aerial stadia observation
** Average for years of record

WSFB-X4-N

APPENDIX 2

SNOW DATA MAY 1 to JUNE 1, 1971

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/14	87	39.8	44.6	43.
Baree Midway	15B16	4600	5/14	53	25.4	33.2	--
Baree Trail	15B15	3800	5/14	0	0.0	0.0	0.
Heart Lake Trail	14C10	4800	5/14	28	14.0	17.2	--
			6/2	4	2.0	3.0	--
Hoodoo Basin	15C10	6000	5/14	109	55.2	52.6	--
			6/2	84	42.3	37.8	--
Hoodoo Creek	15C1	5900	5/14	108	52.7	48.7	42.
			6/2	85	42.4	36.5	32.
Lookout	15B2	5250	5/17	85	39.5	37.9	28.
			6/2	35	18.2	20.7	--
Nelson	Canada	3050	5/14	2	1.0	0.3	0.
Schweitzer Bowl	16A6	4500	5/28	0	0.0	0.0	--
Schweitzer Ridge	16A5	6100	5/28	78	39.2	29.5	--
KETTLE RIVER							
Big White Mountain	Canada	5500	5/14	40	17.8	15.6	17.
			5/31	25	11.1	6.6	8.
Carmi	Canada	4100	5/15	0	0.0	0.0	0.
Lower Trapping Creek	Canada	3050	5/15	0	0.0	0.0	0.
#Monashee Pass	Canada	4500	5/14	12	4.7	6.6	9.
			6/2	0	0.0	0.0	0.
#Old Glory Mountain	Canada	7000	5/15	55	25.7	20.1	29.
			5/31	34	15.9	8.8	17.
Upper Trapping Creek	Canada	5500	5/14	0	0.0	0.0	0.
SPOKANE RIVER							
Granite Peak	15B13A	6000	Late Report			32.4	--
#Lookout	15B2	5250	5/17	85	39.5	37.9	--
			6/2	35	18.2	20.7	--
Lost Lake	15B14A	6000	Late Report			41.0	--
Medicine Ridge	15B4A	6150	Late Report			31.0	--
OKANOGAN RIVER							
Blackwall Peak	Canada	6250	5/14	83	43.5	--	35.
			5/28	69	39.0	22.4	27.
Bouleau Lake	Canada	4500	5/15	26	8.8	--	--
Brookmere	Canada	3200	5/15	5	1.4	--	2.

Not located directly on this drainage
** Average for years of record

WSFB-X4-N

APPENDIX 1
CORRECTIONS AND ADDITIONS - 1971 SNOW REPORTS

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average
February 1							
PEND OREILLE RIVER							
Hoodoo Creek	15C01	5900	1/28	136	47.0	31.8	32.0
SKAGIT RIVER							
Lake Hozomeen	21A02	2600	2/5	41	13.2	--	--
BAKER RIVER							
Dock Butte +	21A11A	3800	2/5	173	77.8	31.9	--
Jasper Pass +	21A6A	5400	2/5	220	99.0	58.5	--
Mt. Blum +	21A18a	5800	2/5	119	53.6	34.2	--
Rocky Creek +	21A12A	2100	2/5	118	53.1	8.6	--
Schreibers Meadow +	21A10A	3400	2/5	152	68.4	32.7	42.
S. F. Thunder Creek+	21A14A	2200	2/5	47	21.2	3.0	4.
March 1							
YAKIMA RIVER							
Bumping Lake	21C08	3450	2/12	49	21.2	25.1	15.
SKAGIT RIVER							
Brown Top Ridge +	21A28a	6000	3/1	156	64.0	35.0	--
April 1							
KETTLE RIVER							
Goat Creek	18A04	3595	3/9	31	9.2	--	--
YAKIMA RIVER							
White Pass (L. Lake)	21C27	4500	3/30	108	42.4	31.5	32.
BAKER RIVER							
Easy Pass +	21A07A	5200	4/4	262	117.7	69.3	96.
Marten Lake +	21A09A	3600	4/5	239	108.8	55.8	88.
Schreibers Meadow +	21A10A	3400	4/5	199	94.2	44.8	73.

\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

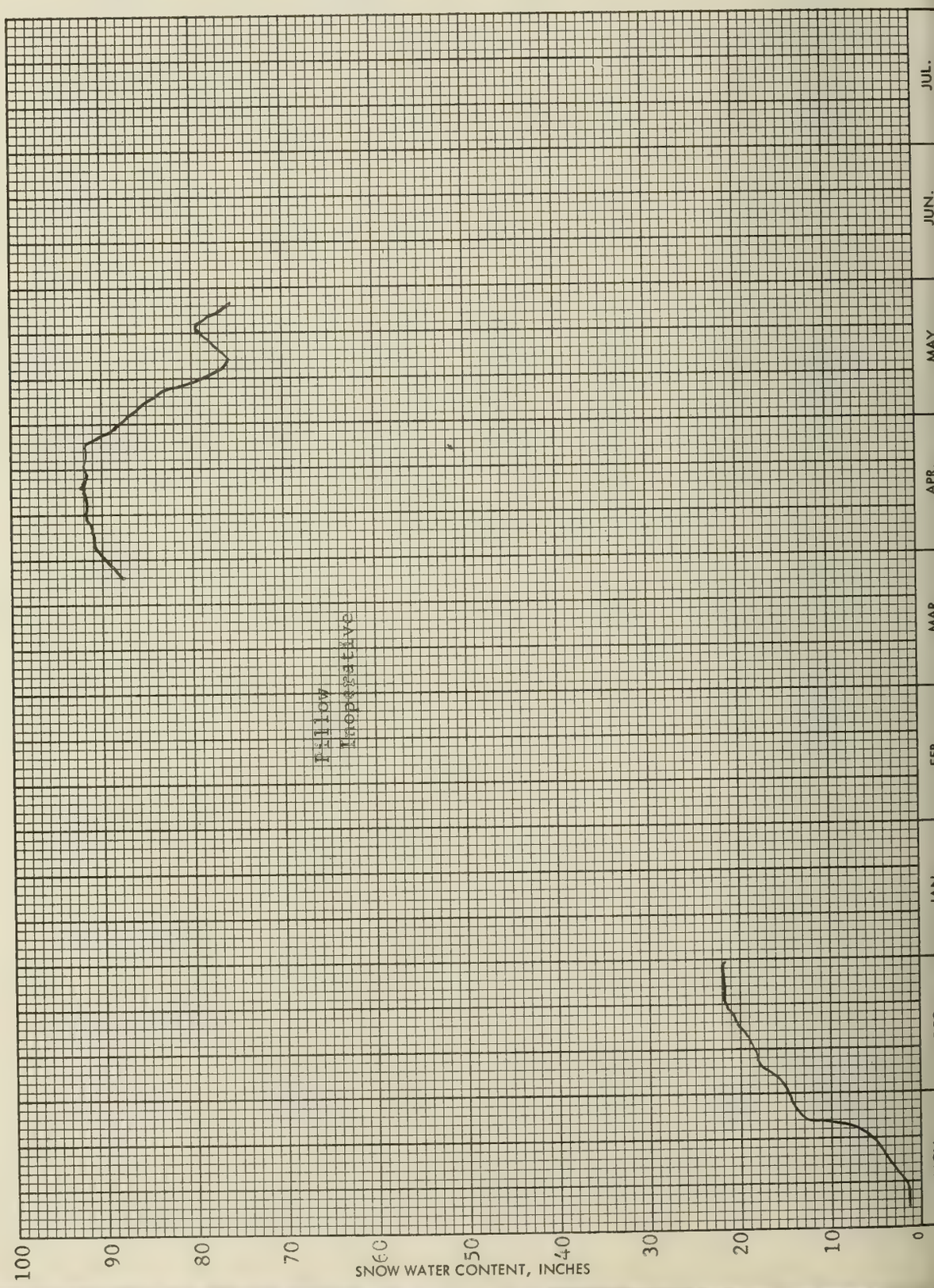
1970-71

SNOW PILLOW DATA

Snowshoe Butte - FS

Sec. 14 T. 20N R. 11E No. 21B43SP Drainage: Green River

Lat. 47° 13' Long. 121° 22' Elev. 4800'



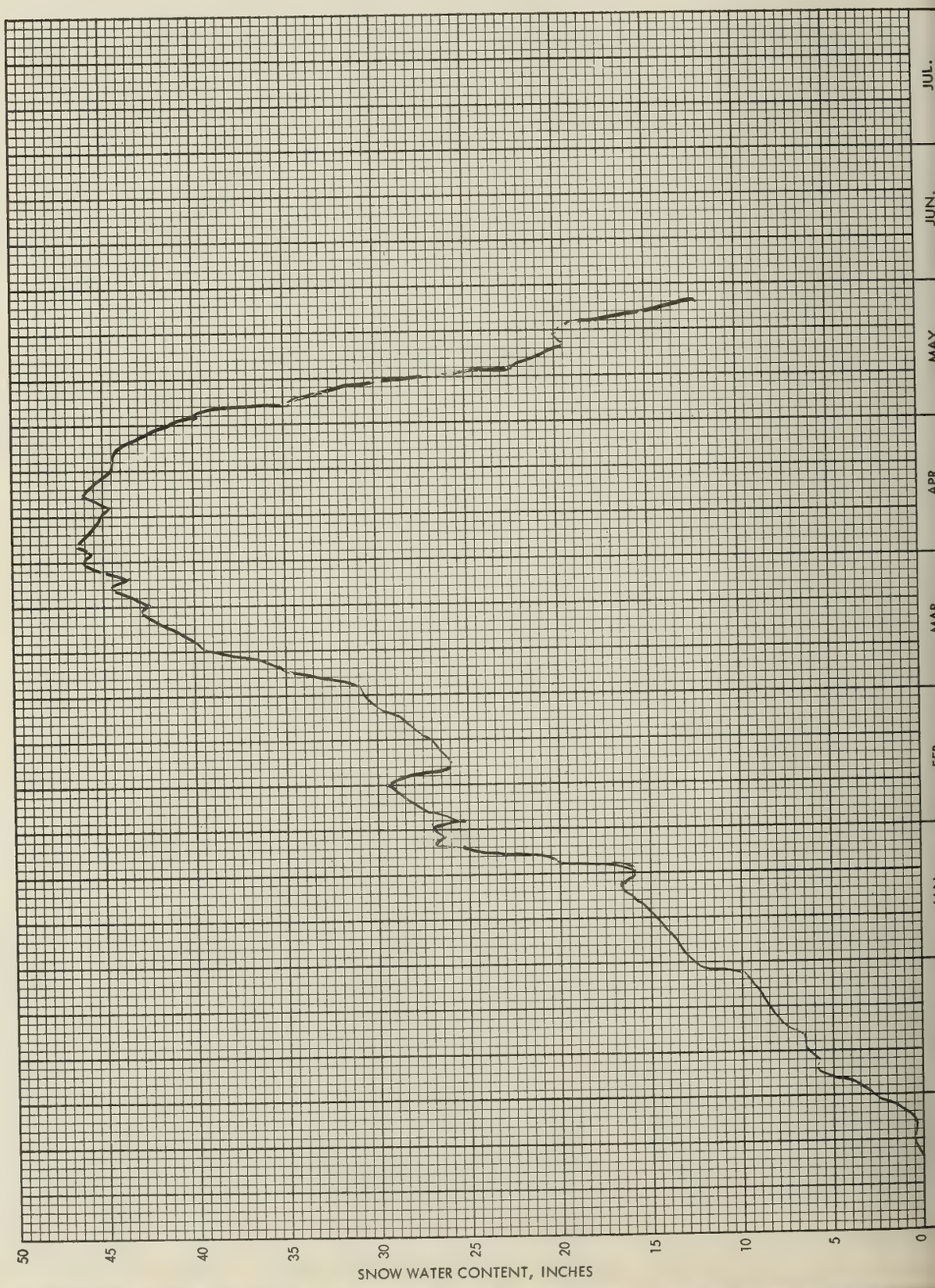
1970-71

SNOW PILLOW DATA

Cougar Mountain - FS

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



PRECIPITATION 1/
Division Averages and Departures

DRAINAGE DIVISIONS	FALL Sept-Oct 1970 2/		WINTER Nov. '70 - Mar. '71 2/		SPRING April - Ma
	Observed	Departure	Observed	Departure	Observed - De
Columbia in Canada	3.64	-0.25	15.63	+2.94	2.90
Pend Oreille - Spokane	4.30	+0.42	19.87	+1.62	4.34
Northeastern Washington	3.16	+0.91	11.07	-0.02	3.64
Southeastern Washington	3.59	+0.94	12.11	-0.30	3.88
Central Washington	3.05	-1.39	33.80	+6.67	2.17
North Central Washington	1.36	-0.05	8.22	+1.88	1.90
Northwest Slope Cascades	12.29	+0.62	63.74	+11.60	7.47
Southwest Slope Cascades	7.74	+0.02	52.21	+11.34	5.36

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse draina
Central Washington	- Yakima, Wenatchee and Chelan drainag
North Central Washington	- Methow and Okanogan drainages.
Northwest Slope Cascades	- Puget Sound drainages.
Southwest Slope Cascades	- Lower Columbia drainages.

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service.

2/ - Departure from 15-year (1953-67) drainage division average.

SOIL MOISTURE - JUNE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of June 1 1971	1970
CRAB CREEK						
Jack Woods	18B3m	2600	48	13.6	9.6	8.5
Krause	18B4m	2440	48	13.6	8.7	8.7
Sheffels	18B5m	2360	48	13.6	9.1	8.6
Sherman	18B7m	2440	48	13.6	8.2	8.2
Wheatridge	18B6m	2200	48	13.6	Station destroyed	8.4
OKANOGAN						
Salmon Meadows	19A2M	4500	48	5.4	3.6	3.7
Trout Creek	3-M	3600	48	7.3	Late report	--
YAKIMA						
Domery Flat	21B20m	2200	48	6.9	4.5	4.4
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2
WALLA WALLA						
Couse	17C3m	3650	48	11.1	9.8	9.8
Helmers	17C2M	4400	48	12.0	10.1	9.7
WENATCHEE						
Upper Wheeler	20B7M	4400	48	12.7	9.9	9.2

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Conte (Inches) as of Oct. 1970	1969
CRAB CREEK						
Jack Woods	18B3m	2600	48	13.6	7.0	7.5
Krause	18B4m	2440	48	13.6	4.4	5.9
Sheffels	18B5m	2360	48	13.6	4.4	4.5
Sherman	18B7m	2440	48	13.6	3.8	4.2
Wheatridge	18B6m	2200	48	13.6	7.8	5.4
OKANOGAN						
Salmon Meadows	19A2M	4500	48	5.4	1.7	2.7
Trout Creek	3-M	3600	48	7.3	3.4*	3.8*
YAKIMA						
Domery Flat	21B20m	2200	48	6.9	2.4	--
Lake Cle Elum	21B14M	2200	48	12.8	7.6	--
WALLA WALLA						
Couse	17C3m	3650	48	11.1	5.9	6.1
Helmers	17C2M	4400	48	12.0	7.3	7.1
WENATCHEE						
Upper Wheeler	20B7M	4400	48	12.7	5.1	9.8

* Nov. 1 measurement

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (June) 1971	1970	1969	N
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	387.6	344.9	289.5	
Columbia	Franklin D. Roosevelt Lake	5232.0	2703.6	2141.4	2122.3	3
Columbia	Banks Lake	761.8	517.7	712.2	347.4	
Okanogan	Conconully Reservoir	13.0	12.0	5.9	12.9	
Okanogan	Salmon Lake	10.5	7.8	9.3	10.5	
Chelan	Lake Chelan	676.1	461.4	309.6	572.5	
		YAKIMA				
Yakima	Keechelus Lake	157.8	143.0	144.6	160.4	
Kachess	Kachess Lake	239.0	222.2	219.4	240.5	
Cle Elum	Lake Cle Elum	436.9	378.1	328.8	421.3	
Bumping	Bumping Lake	33.7	17.5	29.7	29.6	
Tieton	Rimrock Lake	198.0	146.3	157.1	197.5	
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	1323.1	890.8	1105.0	
Skagit	Diablo Reservoir	90.6	87.8	86.5	87.5	
Skagit	Gorge Reservoir	9.8	8.4	8.3	8.4	

1/ Based on Active Storage

* 15-year average 1953-67

WATER SUPPLY OUTLOOK

State of Washington
June 1, 1971

* *
* The weather appears to be cooperating with the orderly outflow *
* of the snowpack in Washington and in the Columbia Basin as a *
* whole. Spells of warm temperature have been followed by cool *
* periods and the rainfall that has occurred has been during the *
* cool periods. The river flows have generally been high but not *
* excessively so and it now appears that the forecasts made on *
* the first of May will be good. In normal years, the precipita- *
* tion that occurs during May and June, as well as the temperature *
* during the rainy periods, will govern the rate of snow melt and *
* the height which the rivers will crest. So far, things look *
* good. *
* *

SNOW COVER

Very few snow courses were measured on May 15 and even less on June 1. The snowpack at those few locations is very good and will sustain the runoff into late summer. On many of the snow courses that were measured on June 1 very little back record is available. Some, therefore, indicate record high measurements for this time of year but most are below the previous high which occurred in 1964. This refers to the snow courses along the Cascade Divide in Washington. In the British Columbia portion of the Basin most courses are near normal.

RESERVOIRS

Only Coeur d'Alene Lake has filled, of the reservoirs reported in this report, as yet this year but all reservoirs are expected to fill and spill by the end of the snow-melt period. All reservoirs, where possible, are now being operated for flood control purposes.

PRECIPITATION

During the month of May precipitation was above normal only in the north central drainage division and in southeastern Washington. The other drainage divisions reported rainfall that ranged from one percent below average to 26 percent below. The spring precipitation figures for April and May are presented later in this report and are self-explanatory.

STREAMFLOW

During the month of May, only the low-elevation watersheds produced below-normal runoff and these, a result of below-normal precipitation during May. The snow-fed streams all produced runoff ranging from 24 percent above normal to 65 percent above.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

JOHN A. BIGGS
DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

USDA-SCS-PORTLAND, OREG. 1970 M7-L-16546

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

ost of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and g, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, ates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are l principally on measurement of the water equivalent of the mountain snowpack.

orecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic rs during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. season forecasts are therefore subject to a greater change than those made on later dates.

e snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in tain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and equivalent. These measurements are repeated in the same location near the same dates each year.

now surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow es in Western United States and in the Columbis Basin in British Columbia. Networks of automatic snow water equivalent elated data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water ther parameters of key locations.

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opies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following s:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Vater Supply Outlook reports prepared by other agencies include a report for California by the Vater Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. ox 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, orests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U. S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OREG 1970

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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
JUNE 1, 1971

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

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COVER PHOTO NUMBER ORC 221-3

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CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA SCS-PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

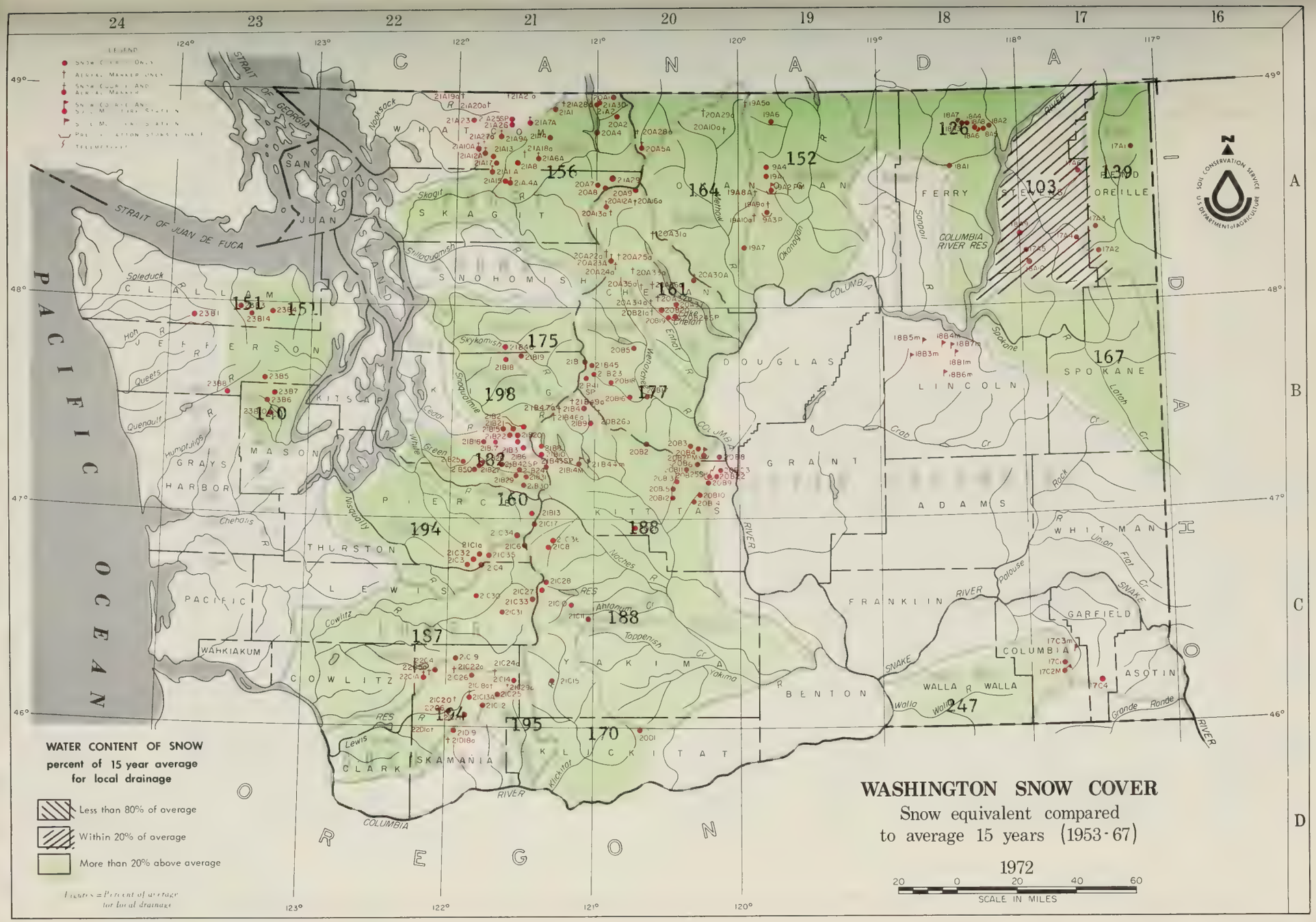
JOHN A. BIGGS

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201


WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1953-67)
1972
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT of AGRICULTURE
WHATCOM
SAN JUAN
SKAGIT
SNOHOMISH
CHELAN
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
KITSAP
KING
DOUGLAS
LINCOLN
SPOKANE
GRAYS HARBOR
MASON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
THURSTON
LEWIS
PACIFIC
FRANKLIN
GARFIELD
WAHKIAKUM
COWLITZ
YAKIMA
BENTON
WALLA WALLA
COLUMBIA
ASOTIN
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER
SNAKE RIVER
Nooksack
Skagit
Stillaguamish
Soleduck
Hoh
Queets
Quenault
Humptulips
Chehalis
Cowlitz
Lewis
Skykomish
Snoqualmie
Cedar
White
Green
Nisqually
Wenatchee
Entiat
Okanogan
Methow
Sanpoil
Spokane
Crab Cr
Latah Cr
Rock
Union Flat Cr
Palouse
Ahtanum Cr
Toppenish Cr
Yakima
Klickitat
Wallo Wallo
Grande Ronde
Lake Chelan
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B4S	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington
February 1, 1972

* *
* The water supply outlook for irrigation and power for the Columbia *
* Basin in Washington and tributary areas can be considered excellent *
* for this time of year. Snow surveys made in the state and adjacent *
* areas as of the 1st of February show a snowpack that varies from *
* 3% above normal to 147% above. The situation this year is very *
* similar to what occurred last year at this time only a little bet- *
* ter. Last year chinook conditions reduced the low-elevation snow- *
* pack late in January but so far this has not occurred this year. *
* The snowpacks are generally quite dense for this time of year, as *
* they were last year, and this denseness has been a result of ex- *
* ceedingly high winds which packed the snow instead of higher temp- *
* eratures which caused this situation last year. Some rain has oc- *
* curred at higher elevations which lubricated the snowpacks and *
* caused a number of slides over the intrastate highways. On the *
* west slopes of the Cascades the snowpack ranges from 56% above nor- *
* mal on the Skagit drainage to 98% above normal on the Snoqualmie. *
* The Olympic Peninsula has a snow cover that is less but still near- *
* ly 50% greater than average. All areas in the state are expected *
* to have abundant water supplies for all purposes that will last *
* throughout the total runoff season. Not all of the main power res- *
* ervoirs have water in storage greater than normal. Much of this *
* water power has been used to generate electricity during the recent *
* cold snaps. With continued cold weather these reservoirs will be *
* utilizing even greater amounts of power but with the spring melt *
* all will fill. Some multipurpose reservoirs with restricted out- *
* flows have already been put on a draw-down cycle to handle the an- *
* ticipated spring runoff. During January the greatest runoff occur- *
* red from some low-elevation streams in the western portion of the *
* state. Considerable flooding did occur in some local areas. *
* *

SNOW COVER

All of the watersheds in the Upper Columbia Basin have well above normal snowpacks for this time of year. The Colville River, due north of Spokane is the only area that has a snow cover that is less than 20% above normal. Most of the snow courses measured on February 1 recorded a normal April 1 snow-water equivalent or greater and some of the snow courses have hit the all-time record for this time of year. The overall situation is similar to last year at this time with a general improvement on the ground. Where last year there was considerable variability between high and low elevations and north and south aspects, the snowpack is generally uniform through the entire state this year.

RESERVOIRS

The five reservoirs in the Yakima drainage have 722,000 acre-feet in storage as of February 1 compared to 626,000 for normal. Last year at this time there were 534,000 acre-feet in these reservoirs. It is anticipated that these reservoirs will be lowered to handle the spring runoff. Franklin D. Roosevelt reservoir has 4,420,000 acre-feet in storage compared to a normal 3,812,000 acre-feet. Both Chelan and Ross reservoirs have below amounts of water in storage but are expected to fill and spill with the spring runoff.

PRECIPITATION

Fall precipitation was below normal in only two areas of the state. These were the central Washington area and the northwestern slopes of the Cascades. November through December precipitation was well above normal in all areas except in the northeastern drainage area.

SOIL MOISTURE

The ten soil moisture stations measured on February 1 indicate the soil mantle to be just about the same as occurred during the last two years with some areas showing improvement and some not quite as good. The drier soils are occurring in the areas where heavy water usage by crops occurred this last year.

STREAMFLOW

Forecasts of streamflows are not made until March 1 but indications are that above-normal runoff will occur during the spring melt. With a continued above-normal precipitation/snowfall regime the situation will improve even moreso. River flows during January were generally near normal with only a few streams reporting high water and localized flooding both west and east of the Cascades. Where streamflow has been below normal the cause has generally been cold weather.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

ne following tabulation of Washington stream basins presents the water content of ne snow about February 1, 1972, as per cent of the same date in 1971 and 1970 and verage of record.

ributary Basin	No. of Courses Average	Years of Record	1972 Snow Water Expressed as percent of 1971	1970	1953-67 Avg.
		UPPER COLUMBIA BASIN			
end Oreille	5 - 9	8 - 35	104	168	139*
ettle	12 - 14	6 - 32	101	157	126*
olville	5	10 - 13	75	125	103*
pokane	3	10 - 27	121	169	167*
kanogan	21 - 30	26 - 28	118	173	152*
ethow	6	9 - 34	107	152	164*
helan	1	18	110	195	161*
ntiat	2 - 8	5 - 11	96	145	164*
enatchee	8 - 9	4 - 27	108	153	177*
akima	18 - 21	4 - 50	121	161	188*
htanum	1	30	123	130	188
		LOWER COLUMBIA			
ill Creek	2	17 - 18	181	--	247*
lickitat	1	14	83	114	170*
hite Salmon	2	14	109	206	195*
ewis	17 - 18	9 - 14	109	240	194*
owlitz	8 - 9	8 - 20	111	221	187*
		PUGET SOUND			
isqually	4	6 - 15	185	208	194*
hite	1	20	100	180	160*
reen	5 - 9	10 - 25	132	250	182*
noqualmie	1	22	121	197	198*
kykomish	1 - 2	4 - 27	111	170	175*
kagit	3 - 10	14 - 24	102	188	156*
ooksack	1	3	97	180	-
		OLYMPIC PENINSULA			
kokomish	3 - 4	8 - 14	92	92	140*
lwha	1	12	110	252	151*
ungeness	1	18	112	185	151*

* Records of less than 15 years used on computation of averages

RESERVOIR STORAGE - 1000 Acre Feet

IN or EAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1972	1971	1970	Normal*
		COLUMBIA				
kane	Coeur d'Alene Lake	225.1	147.3	202.5	161.1	137.0
umbia	Franklin D. Roosevelt Lk.	5232.0	4420.2	5065.6	4449.4	3812.5
umbia	Banks Lake	761.8	714.9	712.2	597.3	494.0
nogan	Conconully Reservoir	13.0	9.1	5.3	7.0	5.6
nogan	Salmon Lake	10.5	8.6	2.1	7.8	8.6
lan	Lake Chelan	676.1	190.4	216.3	187.8	318.4
		YAKIMA				
ima	Keechelus Lake	157.8	137.2	97.3	50.3	92.1
hess	Kachess Lake	239.0	156.5	175.3	166.9	172.2
Elum	Lake Cle Elum	436.9	277.1	170.1	155.6	241.1
ping	Bumping Lake	33.7	5.0	5.3	9.1	9.9
ton	Rimrock Lake	198.0	146.7	86.2	75.9	111.3
		PUGET SOUND				
git	Ross Reservoir	1202.9	822.1	895.4	849.3	956.3
git	Diablo Reservoir	90.6	83.9	84.4	83.6	85.6
git	Gorge Reservoir	9.8	7.8	7.9	7.5	--

Based on Active Storage

15-year average 1953-67

SOIL MOISTURE - February

inage Basin tion	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Feb. 1. 1972	1971	1970
B CREEK							
k Woods	18B3m	2750	48	13.6	8.0	8.9	8.3
use	18B4m	2420	48	13.6	5.6	4.9	7.2
ffels	18B5m	2380	48	13.6	7.7	5.7	6.1
rman	18B7m	2440	48	13.6	6.4	5.5	6.6
atridge	18B6m	2290	48	13.6	8.1	8.9	8.4
NOGAN							
mon Meadows	19A2M	4500	48	5.4	4.1	2.6	2.1
ut Creek	3-M	3600	48	7.3	4.0	3.4*	3.0**
IMA							
ery Flat	21B20m	2200	48	6.9	Soil moisture meter inoperative	4.9	5.7
e Cle Elum	21B14M	2200	48	12.8		9.2	9.1
LA WALLA							
se	17C3m	3650	48	11.1	10.5	10.6	--
mers	17C2M	4400	48	12.0	10.6	10.9	--
ATCHEE							
er Wheeler	20B7M	4400	48	12.7	9.0	10.3	6.8

Nov 1 measurement
Jan 1 measurement

FALL SOIL MEASUREMENT

ainage d ation	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1971	1970	1969
AB CREEK							
ck Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
ause	18B4m	2420	48	13.6	5.0	4.4	5.9
effels	18B5m	2380	48	13.6	5.3	4.4	4.5
erman	18B7m	2440	48	13.6	4.0	3.8	4.2
eatridge	18B6m	2290	48	13.6	5.5	7.8	5.4
ANOGAN							
lmon Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
out Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
KIMA							
mery Flat	21B20m	2200	48	6.9	2.1	2.4	--
ke Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
LLA WALLA							
use	17C3m	3650	48	11.1	6.2	5.9	6.1
lmers	17C2M	4400	48	12.0	8.2	7.3	7.1
NATCHEE							
per Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

age ions	FALL Sep - Oct Average	1971 2/ Departure	WINTER Nov - Dec 1971 Average	Jan 1972 2/ Departure
bia in Canada	4.45	+0.56	11.98	+2.92
Oreille -Spokane	4.63	+0.48	13.99	+1.52
eastern Washington	3.16	+0.91	7.21	-0.53
eastern Washington	3.73	+1.08	9.17	+0.75
al Washington	4.15	-0.29	25.12	+5.43
Central Washington	1.99	+0.58	6.51	+1.93
west Slope Cascades	11.60	-0.07	38.84	+3.21
west Slope Cascades	9.33	+1.61	35.59	+7.44

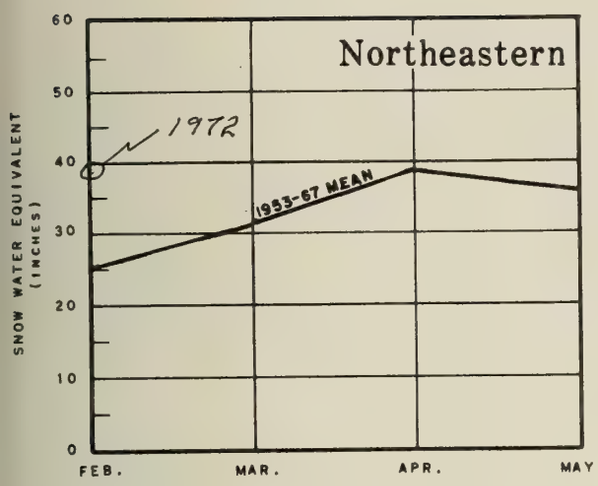
eastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
eastern Washington	- Touchet, Tucannon and Palouse drainages.
al Washington	- Yakima, Wenatchee and Chelan drainages.
Central Washington	- Methow and Okanogan drainages.
west Slope Cascades	- Puget Sound drainages.
west Slope Cascades	- Lower Columbia drainages.

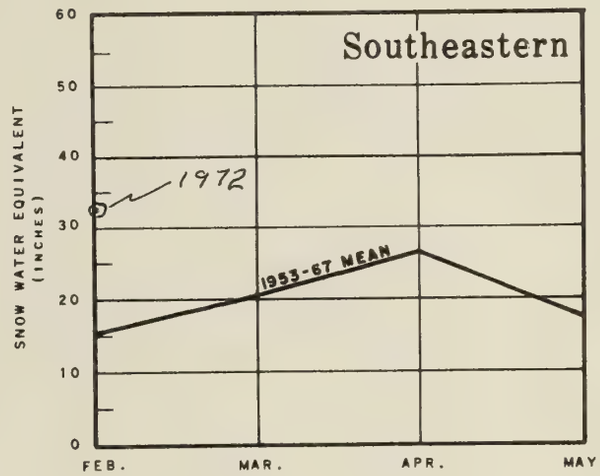
Preliminary analysis by National Weather Service from dats furnished by Meteorological Services of Canada and National Weather Service.

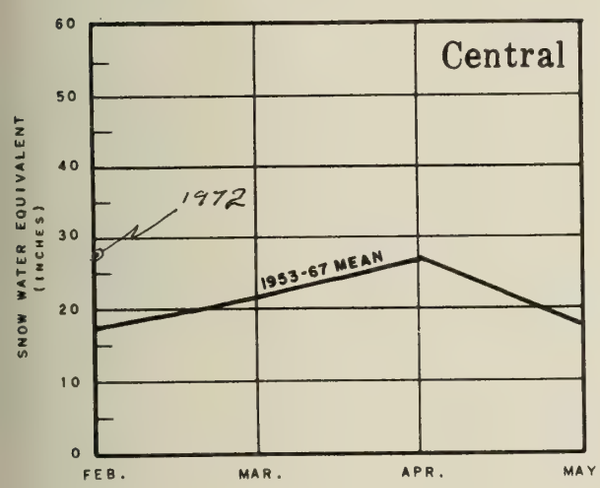
Departure from 15-year (1953-67) drainage division average.

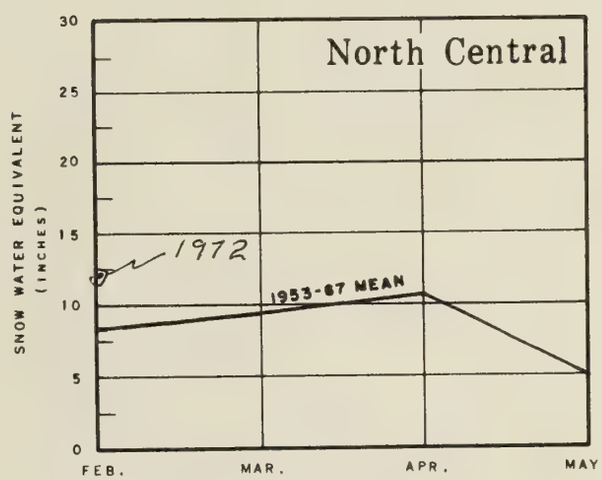
WASHINGTON SNOW COVER

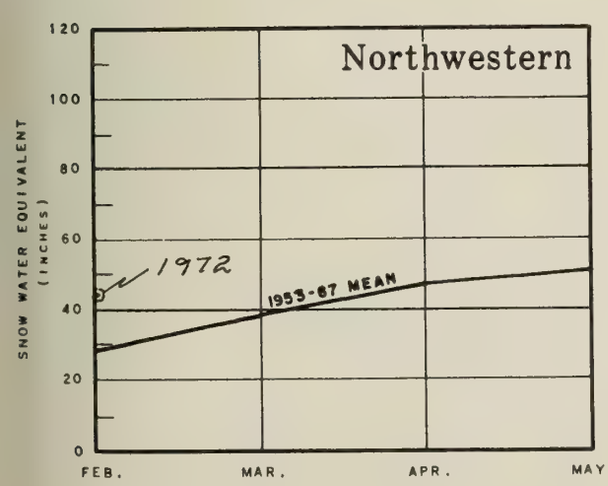
DRAINAGE AREAS

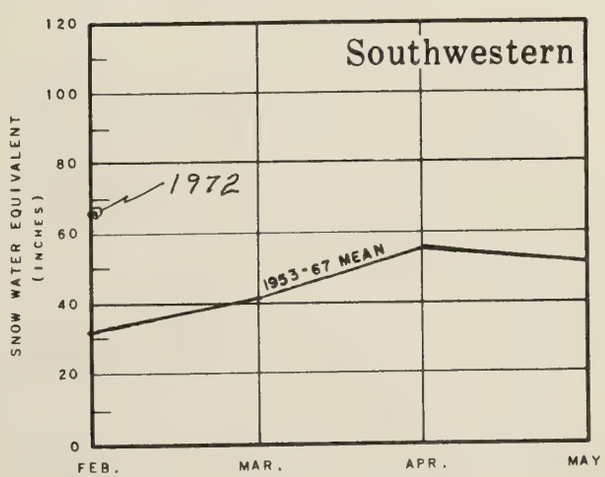










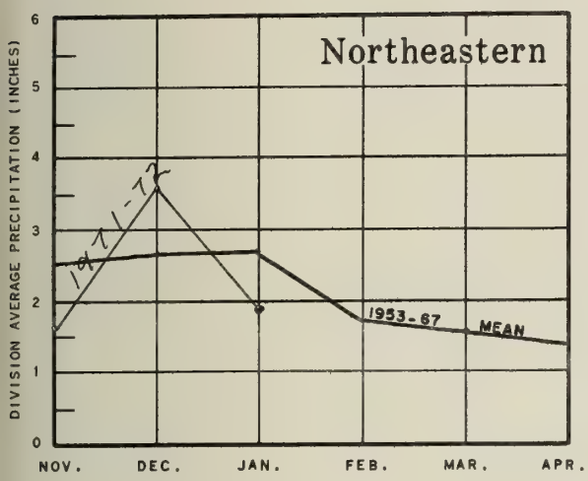


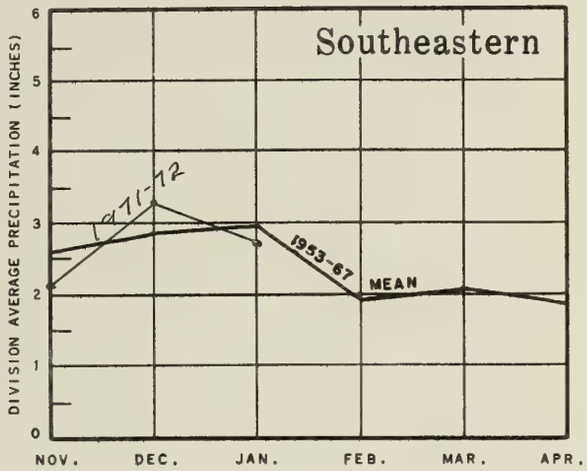
Selected Snow Survey Courses by Soil Conservation Service

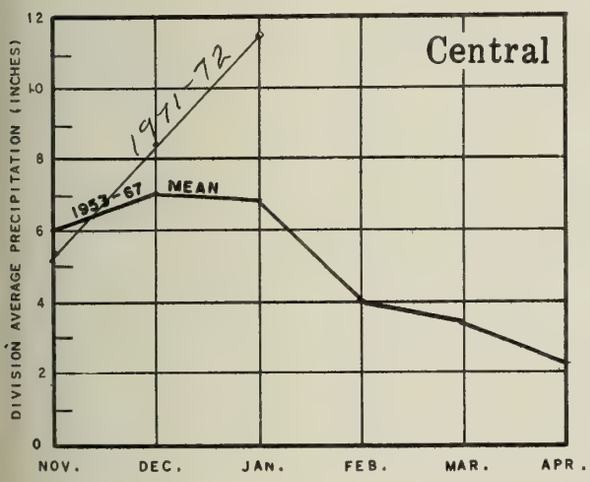
WASHINGTON VALLEY PRECIPITATION

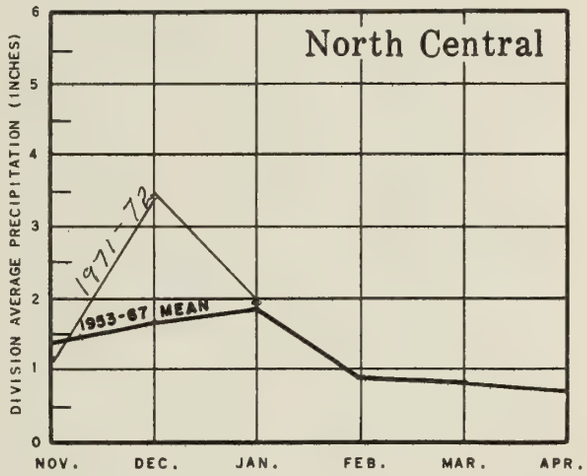
1971-1972

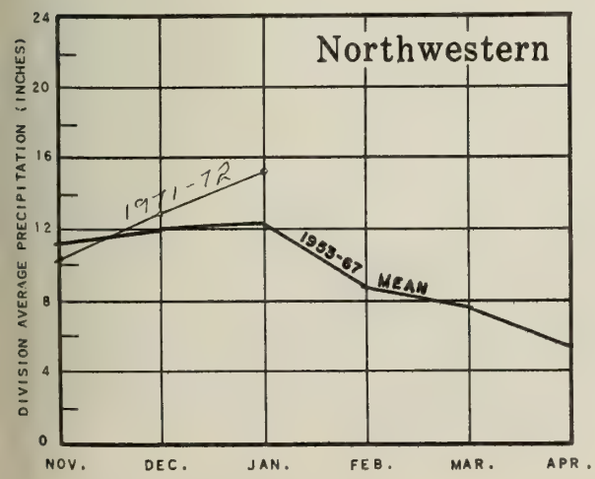
DRAINAGE AREAS

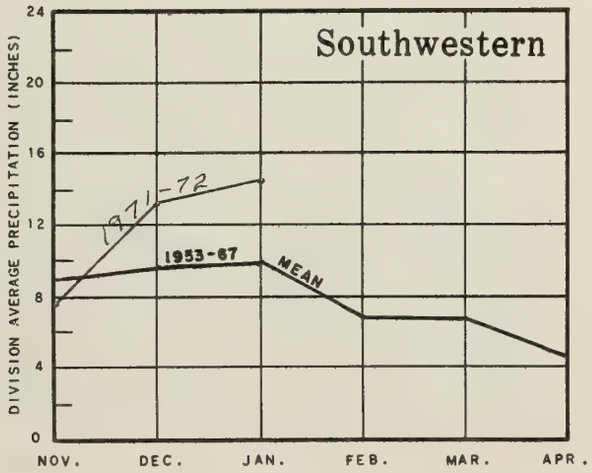












Preliminary Analysis by U. S. Weather Bureau

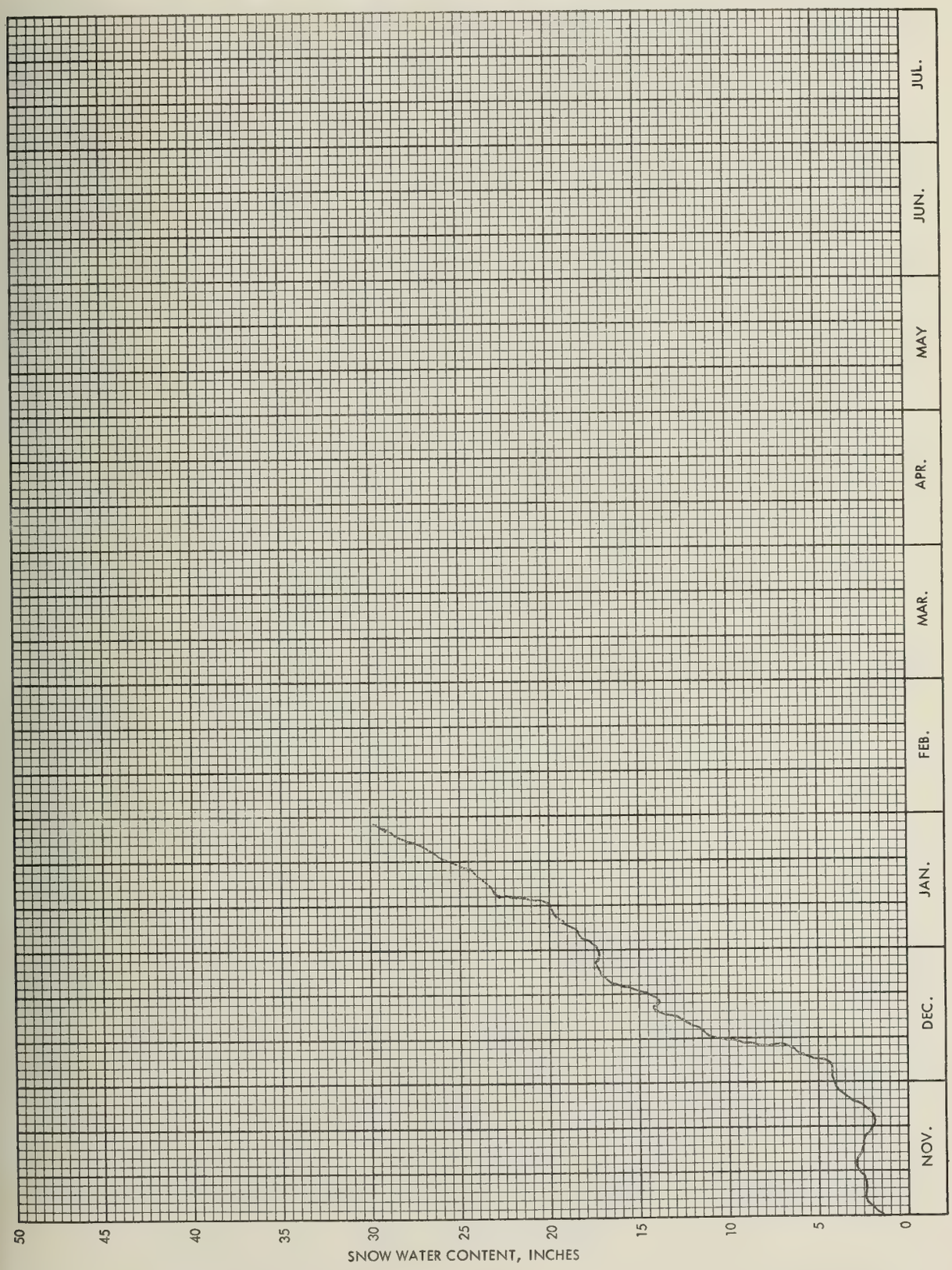
SNOW PILLOW DATA

Barns-Mill Creek

1971-72

Sec. 13 T. 26N R. 14E No. 11551SP Drainage: Wenatchee R.

Lat. 47° 45' Long. 121° 42' Elev. 3240



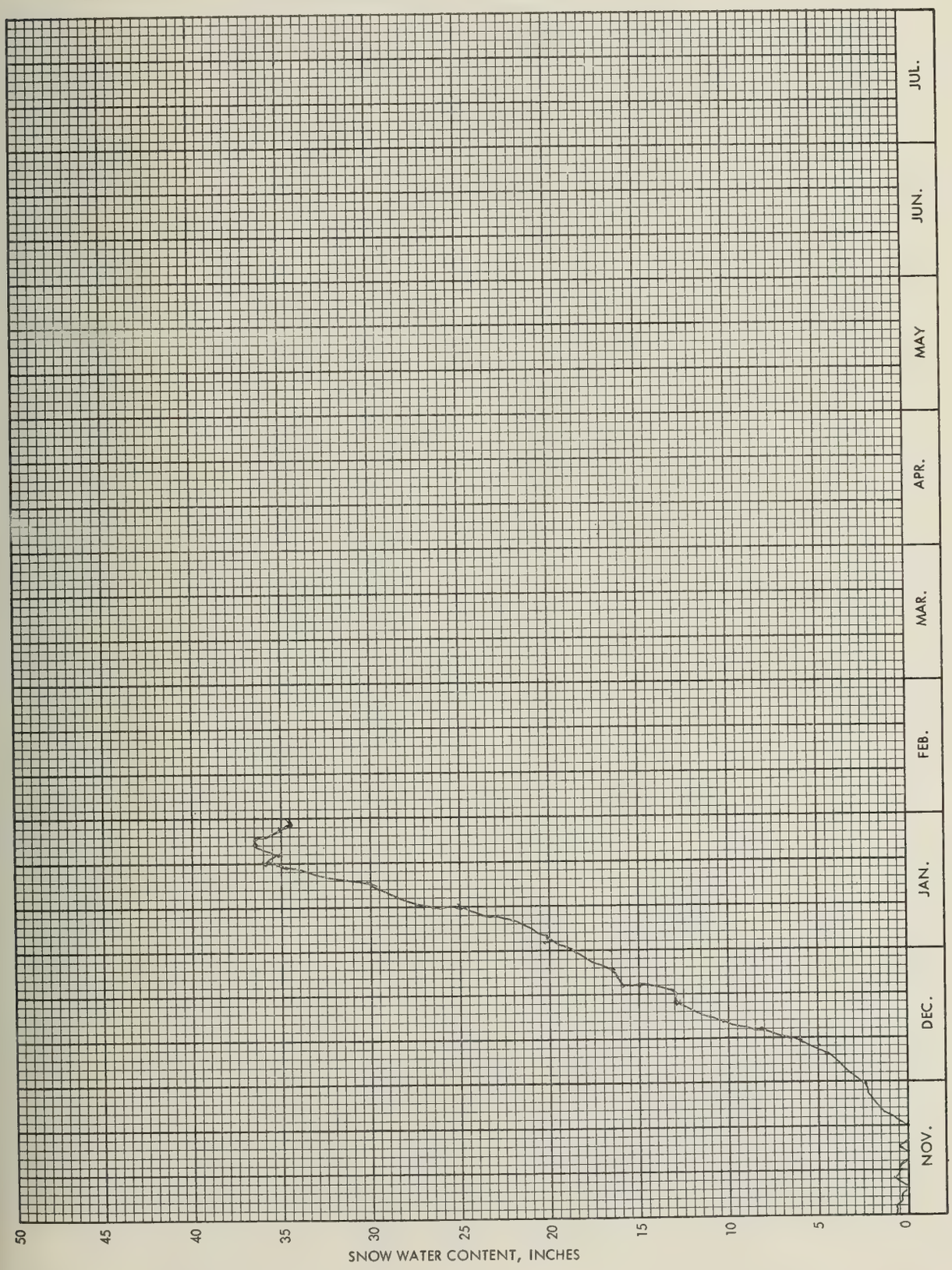
SNOW PILLOW DATA

Cougar Mountain - PS

1971 - 72

Sec. 21 T. 21N R. 9E No. 21842SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



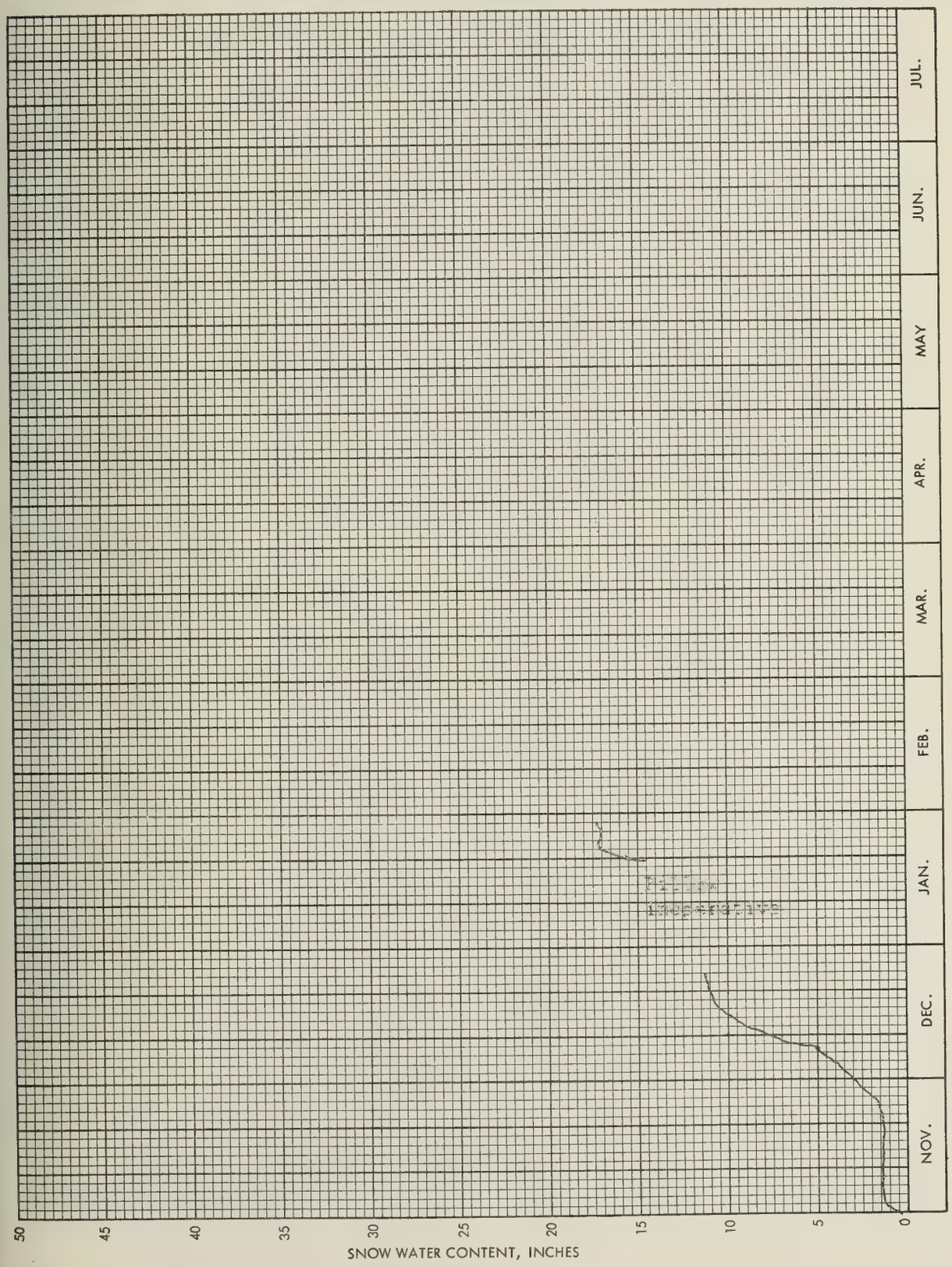
SNOW PILLOW DATA

Trough No. 2

1971-72

Sec. 10 T. 20N R. 20E No. 23825SP Drainage: Wenatchee R.

Lat. 47° 14' Long. 120° 19' Elev. 5310



SNOW DATA TO FEBRUARY 1, 1972 - APPENDIX 1

NOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average 1/
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Benton Meadow	16A2	2344	12/30	18	3.8	5.9	3.2
			1/28	19	5.0	7.1	5.1
Benton Spring	16A3	4900	12/29	42	11.1	9.0	8.6
			2/2	55	18.0	15.8	14.0
Boyer Mountain	17A2	5250	12/28	53	14.4	--	--
#Chewelah	17A4	4925	1/29	37	11.0	14.5	13.2*
Heart Lake Trail	14C10	4800	1/4	54	15.2	11.4	--
			1/28	87	29.6	26.2	--
Hoodoo Basin	15C10	6000	1/4	95	28.5	25.2	--
			1/28	156	52.2	48.3	--
Hoodoo Creek	15C01	5900	1/4	92	27.5	23.4	--
			1/28	157	51.5	47.0	32.0
Lookout	15B2	5250	12/29	78	19.4	21.8	15.7
			1/31	121	39.3	36.1	25.0
Nelson	Canada	3050	11/15	9	2.7	0.0	--
			12/15	34	5.0	5.0	--
			1/2	42	10.2	8.9	--
			1/14	53	13.7	--	--
			1/31	50	15.0	14.1	11.2**
Schweitzer Bowl	16A6	4500	12/30	69	18.8	17.2	--
			1/28	75	28.8	28.3	--
Schweitzer Ridge	16A5	6100	12/30	89	26.7	28.0	--
			1/28	116	40.0	39.7	--
Winchester Creek	17A3	2970	12/28	33	7.4	--	--
			1/26	38	9.2	12.6	9.2*
KETTLE RIVER							
Barnes Creek	Canada	5500	1/27	58	19.2	15.1	13.7**
Big White Mtn	Canada	5500	1/30	54	15.4	15.6	14.0**
Boulder Road	18A2	1450	10/26	0	0.0	--	--
			11/15	0	0.0	0.0	--
			12/11	17	4.6	3.0	--
			12/23	14	3.4	5.3	--
			1/10	16	3.0	6.3	--
			1/25	22	4.3	7.3	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 2

IOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
KETTLE RIVER (Cont.)							
Butte Creek	18A3	4070	10/26	0	0.0	--	--
			11/15	4	0.7	1.0	--
			12/11	26	5.1	3.3	2.9*
			12/23	29	3.9	6.3	4.3*
			1/10	27	7.0	6.7	5.8*
			1/25	32	8.4	9.1	6.6*
Cabin Creek	18A8	3170	10/26	0	0.0	--	--
			11/15	0	0.0	0.0	--
			12/11	22	5.5	3.2	2.4*
			12/23	25	4.3	6.0	4.2*
			1/10	25	6.0	6.2	5.5*
			1/25	29	7.2	8.8	6.0*
Carmi	Canada	4100	1/25	30	7.6	6.0	5.4**
Farron	Canada	4000	1/28	40	11.5	11.7	9.7**
Goat Creek	18A4	3595	10/26	0	0.0	--	--
			11/15	0	0.0	0.5	--
			12/11	22	5.0	2.9	2.1*
			12/23	25	3.6	5.9	3.7*
			1/10	24	5.9	6.0	4.9*
			1/25	27	7.0	8.2	5.5*
Lower Trapping	Canada	3050	1/30	28	6.8	4.0	4.5**
#Monashee Pass	Canada	4500	1/27	43	13.8	7.5	9.5**
Old Glory Mountain	Canada	7000	1/30	79	20.5	25.4	18.6**
Snow Caps Creek	18A5	2150	10/26	0	0.0	--	--
			11/15	0	0.0	0.0	--
			12/11	18	5.0	2.8	--
			12/23	16	3.5	5.7	2.3*
			1/10	18	4.0	6.0	3.5*
			1/25	24	5.0	7.0	4.3*
Snow Caps Trail	18A6	2720	10/26	0	0.0	--	--
			11/15	0	0.0	0.0	--
			12/11	21	5.2	3.1	1.7*
			12/23	22	4.1	5.5	3.0*
			1/10	21	5.5	6.2	4.0*
			1/25	26	6.9	7.8	4.9*

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 3

DRAINAGE BASIN and/or SNOW COURSE NAME	No.	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average 1/
KETTLE RIVER (Cont.)							
Summit G. S.	18A7	4600	10/26	0	0.0	--	--
			11/15	4	1.1	1.0	--
			12/11	16	4.2	2.2	3.0*
			Snow course plowed out				
Upper Trapping Cr.	Canada	5500	1/30	38	9.6	8.0	7.2**
COLVILLE RIVER							
Baird	17A6	3215	1/30	29	7.2	4.8	5.9*
Carlson	18A9	2885	1/29	16	3.7	6.0	4.3*
Chewelah	17A4	4925	1/29	37	11.0	14.5	13.2*
Stranger Mountain	17A5	4990	1/29	36	10.2	17.4	9.8*
Togo	18A10	3370	1/29	38	10.8	14.2	8.6*
SPOKANE RIVER							
4th of July Summit	16B3	3100	12/30	38	9.8	6.0	3.5*
			1/31	44	12.2	10.0	6.4*
Lookout	15B2	5250	12/29	78	19.4	21.8	15.7
			1/31	121	39.3	36.1	25.0
Sherwin	16C1	3200	12/29	49	11.4	6.8	--
			1/28	61	18.1	11.5	10.4*
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	1/31	33	6.6	5.0	5.0**
Blackwall Peak	Canada	6250	12/20	74	21.2	16.2	--
			2/2	110	42.0	36.5	24.6**
Bouleau Lake	Canada	4500	1/2	42	13.8	4.2	--
			1/26	55	15.6	11.0	--
Brenda Mine	Canada	4800	1/26	52	15.2	9.5	--
Brookmere	Canada	3200	1/30	45	9.6	10.7	10.7**
Carrs Landing Lower	Canada	2250	12/31	17	3.4	1.2	--
			1/28	22	4.8	3.0	--
Carrs Landing Upper	Canada	3200	12/31	22	4.4	1.8	--
			1/28	26	5.4	4.0	--
Clark +	19A8a	7000	Late Report			15.9	--
Enderby	Canada	4300	1/26	100	29.1	29.1	24.3**
Freezeout Meadow	20A2	5000	Avalanched out			31.3	--
Hamilton Hill	Canada	4900	Late Report			16.2	10.6**
Harts Pass	20A5A	6500	1/28	134	44.3	44.6	28.2*
Horseshoe Basin +	19A5a	7000	Late Report			14.1	9.7*
Isintok Lake	Canada	6300	12/30	31	7.7	4.0	5.6**
			1/30	43	12.1	6.7	5.6**
Lost Horse Mountain	Canada	6300	1/31	51	13.2	9.1	6.4**

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 4

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
OKANOGAN RIVER (Cont.)							
Loup Loup	19A7	4650	1/28	38	10.9	10.6	6.6*
McCulloch	Canada	4200	12/27	25	5.0	3.6	--
			1/29	32	7.4	4.9	4.9**
Missezula Mountain	Canada	5100	Late Report			9.0	6.5**
Mission Creek	Canada	6000	1/28	61	18.3	18.5	13.4**
Monashee Pass	Canada	6000	1/27	43	13.8	7.5	9.5**
Mount Kobau	Canada	6000	1/31	46	13.3	13.5	11.1**
Muckamuck +	19A9a	6390	Late Report			15.0	--
Mutton Creek No. 1	19A1	5700	1/24	63	18.7	14.6	9.7*
Mutton Creek No. 2	19A4	6000	1/24	57	16.7	15.0	10.1*
New Copper Mtn.	Canada	4300	1/29	39	10.9	6.5	5.4**
New Penticton Res.	Canada	5225	2/2	39	10.6	7.8	--
Paysayten +	20A28a	4300	Late Report			17.9	11.6*
Postill Lake	Canada	4500	1/31	33	8.5	7.3	5.8**
Rusty Creek	19A3	4000	1/25	35	8.0	8.8	5.6
Salmon Meadows	19A2	4500	1/24	43	12.1	9.8	7.3*
Silver Star Mtn.	Canada	6050	12/31	66	19.8	16.0	--
			1/29	81	27.5	22.6	18.8**
Starvation Mtn.	19A10a	6750	Late Report			15.9	--
Summerland Reservoir	Canada	4200	12/31	32	7.8	4.6	--
			1/29	43	12.1	8.9	7.5**
Touts Coulee	19A6	2845	1/31	26	5.4	5.2	3.1*
Trout Creek	Canada	4700	2/3	40	11.5	7.2	7.1**
Vaseux Creek	Canada	4050	1/29	32	8.2	6.5	--
White Rocks Mtn.	Canada	6000	1/28	66	21.8	21.4	--
METHOW RIVER							
Billy Goat Pass +	21A10a	6409	Late Report			32.6	21.5*
Dollar Watch +	20A29a	7000	Late Report			25.9	18.4*
Harts Pass	20A5A	6500	1/28	134	44.3	44.6	28.2*
Horseshoe Basin +	19A5A	7000	Late Report			14.1	9.7*
Loup Loup	19A7	4650	1/28	38	10.9	10.6	6.6*
#Mutton Creek No. 1	19A1	5700	1/24	63	18.7	14.6	9.7*
#Mutton Creek No. 2	19A4	6000	1/24	57	16.7	15.0	10.1*
#Rusty Creek	19A3	4000	1/25	35	8.0	8.8	5.6
#Salmon Meadows	19A2	4500	1/24	43	12.1	9.8	7.3*
#War Creek Pass +	20A31a	6500	Late Report			37.1	--
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	Late Report			31.4	29.4*
Greenwood Flat +	20A25a	3540	Late Report			27.5	21.6*
Little Meadows +	20A24a	5275	Late Report			30.1	29.9*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average ✓
CHELAN LAKE BASIN (Cont.)							
Lyman Lake +	20A23A	5900	Late Report			47.7	38.9*
Park Creek Flat +	20A13a	2220	Late Report			28.8	27.8*
Park Creek Ridge	20A12A	4600	Late Report			38.7	35.3*
Petersons +	20A16a	3730	Late Report			30.7	26.2*
Rainy Pass	20A0	3730	1/27	134	43.8	39.8	27.5*
Safety Harbor +	20A30A	6300	Late Report			28.5	--
War Creek Pass +	20A31a	6500	Late Report			37.1	--
ENTIAT RIVER							
Brief	20B19	1600	1/26	39	11.4	12.0	6.3*
Entiat Meadows +	20A33a	4800	1/28	152	48.3	48.0	--
Entiat River Trail +	20A34a	3150	1/28	84	26.7	27.4	--
Fox Camp +	20A36a	6510	1/28	156	49.6	50.6	--
Pope Ridge	20B20	4300	1/27	71	22.7	21.8	14.5*
Pugh Ridge +	20A32a	6400	1/28	117	37.2	34.9	--
Shady Pass	20A37	6200	Not measured			28.2	--
Snow Brushy +	20A35a	3850	1/28	109	34.7	43.2	--
Tommy Creek +	20B21a	5300	1/28	92	29.3	32.0	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	11/15	9	2.7	--	1.2*
			11/29	25	4.9	7.0	4.8*
			12/15	66	13.8	13.7	7.3*
			12/29	63	16.7	20.8	11.4*
			1/14	79	28.1	25.6	17.1*
			1/28	101	36.2	34.5	20.7*
Berne-Mill Creek New	20B41SP	3240	11/29	21	3.8	6.2	--
			12/29	60	17.9	21.0	10.9*
			1/28	75	28.6	33.6	19.6*
Blewett Pass No. 2	20B02	4270	12/29	46	13.5	8.1	6.3
			1/27	82	27.7	20.3	11.2
Chiwaukum G. S.	20B16	1810	11/29	14	2.0	3.2	1.7*
			12/15	45	7.6	5.2	2.7*
			12/29	41	10.4	9.6	4.6*
			1/14	51	14.0	13.0	7.5*
			1/27	55	16.6	15.2	9.0*

* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 6

OW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average 1/
WENATCHEE RIVER (Cont.)							
Lake Wenatchee	20B5	1970	11/29	11	1.7	4.1	--
			12/15	46	8.4	6.6	3.7*
			12/29	43	11.3	11.4	5.8*
			1/14	60	15.3	15.0	9.6*
			1/27	65	20.4	18.1	12.0*
Leavenworth R. S.	20B17	1127	11/2	0	0.0	0.0	--
			11/10	0	0.0	0.0	--
			11/29	4	2.0	2.0	--
			12/13	28	4.9	4.6	--
			12/27	29	6.9	5.6	2.9*
			1/11	35	7.8	8.0	4.0*
			1/28	35	10.9	8.6	5.0*
Lyman Lake +	20A23A	5900	Late Report			47.7	38.9*
Merritt	20B18	2140	11/29	11	1.8	5.2	2.9*
			12/15	56	9.8	10.2	4.6*
			12/29	45	12.0	16.4	8.0*
			1/14	57	17.8	20.2	12.0*
			1/27	70	23.0	23.6	14.1*
Stevens Pass	21B1	4070	10/28	11	2.4	2.5	--
			11/15	21	6.3	3.8	--
			11/29	45	10.6	12.1	10.0*
			12/15	98	21.2	23.4	14.7*
			12/29	103	30.3	33.5	20.8
			1/14	139	46.0	41.7	26.6
			1/27	162	60.1	52.5	34.4
Stevens Pass S. Shed	21B45	3700	11/15	12	3.1	--	--
			11/29	29	5.6	8.6	--
			12/15	72	14.6	17.5	--
			12/29	72	21.1	25.3	--
			1/14	102	32.9	30.2	--
			1/27	120	42.7	40.1	--
Trough No. 2	20B25SP	5310					

\# Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	1/28	55	19.2	14.8	--
Colockum Creek Lower	20B23	4300	1/28	45	14.5	10.5	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	1/27	41	12.5	10.2	5.1*
Scout-A-Vista	20B4	3400	1/27	40	12.2	9.2	5.4*
STEMILT CREEK							
Jump-Off	20B8	4450	1/27	50	15.0	11.4	4.8*
Stemilt Slide	20B6	5000	1/26	71	20.1	16.3	10.0*
Upper Wheeler	20B7	4400	1/26	56	17.1	12.3	6.5*
YAKIMA RIVER							
Ahtanum R. S.	21C11	3100	12/27	29	6.2	5.0	3.2*
			1/27	38	10.7	8.7	5.7
Blewett Pass No. 2	20B2	4270	12/29	46	13.5	8.1	6.3
			1/27	82	27.7	20.3	11.2
Bumping Lake (Old)	21C8	3450	11/30	17	3.2	3.9	3.8*
			12/16	34	5.8	9.0	4.2*
			1/3	34	9.2	14.1	6.6
			1/14	49	14.6	18.9	10.6*
			1/31	57	18.9	21.5	12.3
Bumping Lake (New)	21C36	3400	11/30	19	3.7	4.8	--
			12/16	38	8.0	9.6	--
			1/3	41	11.8	16.6	--
			1/14	57	18.4	22.1	12.4*
			1/31	67	24.9	26.0	14.9*
Cayuse Pass	21C6	5300	12/27	163	51.2	51.5	34.3*
			1/27	255	89.8	89.6	56.3*
Colockum Pass	20B9	5370	2/1	72	19.7	17.8	10.5*
Cooke Creek	20B10	4123	2/1	44	13.0	8.8	5.0*
Grouse Camp	20B11	5385	1/31	70	22.2	17.4	12.2*
High Creek	20B12	2930	1/31	44	13.1	8.0	4.6*
Joe Lake +	21B46a	4624	1/27	219 2/	70.0 2/	--	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation
2/ Aerial marker over-topped--mound seen

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG 1971 M7-0-22028-D

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
YAKIMA RIVER (Cont.)							
Lake Cle Elum	21B12	2200	11/3	7	1.9	--	--
			11/15	0	0.0	--	--
			11/30	0	0.0	3.0	1.2*
			12/15	40	6.4	4.7	1.7*
			1/2	31	7.6	8.3	3.9*
			1/17	47	14.5	8.7	5.9*
			2/1	52	18.4	10.9	7.8
Lemah Creek +	21B47a	3327	1/27	150	48.0	41.0	--
Manashtash	20C1	3935	2/2	32	8.8	6.7	3.4*
Morse Lake	21C17	5400	1/31	175	63.3	--	39.7*
Nanum	20B13	3875	1/31	50	15.0	11.2	6.9*
Olallie Meadows	21B2	3625	1/30	146	59.7	49.4	30.2*
Satus Pass	20D1	4030	1/27	50	13.8	16.6	8.1*
Stampede Pass	21B10	3000	12/2	32	7.2	--	7.4*
			12/17	84	22.8	--	10.8*
			1/2	87	16.6	19.0	16.9*
			1/18	154	38.6	26.3	21.4*
			1/31	159	50.0	27.8	28.8
Trail Creek	20B14	3360	2/1	30	8.9	5.5	--
Tunnel Avenue	21B8	2450	11/1	8	1.8	--	--
			11/15	0	0.0	--	--
			11/30	12	2.8	4.2	3.3*
			12/17	40	11.3	12.6	5.5*
			12/31	50	13.5	17.4	8.6
			1/13	72	20.4	18.2	13.1
			1/29	79	27.9	26.0	17.0
Van Epps Pass +	20B26a	5925	1/27	192	61.4	54.6	--
Walters Flat	20B15	3360	1/31	45	13.8	9.0	5.9*
Waptus Lake +	21B49a	3024	1/27	168	53.8	43.8	--
White Pass (E. Side)	21C28	4500	12/1	22	5.1	6.9	--
			12/15	53	11.8	9.9	--
			12/30	57	17.3	15.4	11.1*
			Not measured			20.4	13.7*
			1/25	112	40.9	29.9	16.7*
White Pass (L. Lake)	21C27	4500	12/28	66	18.9	12.7	13.3*
			1/27	132	46.9	33.1	20.6*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	12/27	29	6.2	5.3	3.2*
			1/27	38	10.7	8.7	5.7
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	1/27	80	27.6	21.9	--
MILL CREEK							
Homestead	17C1	4030	1/26	44	14.4	7.5	5.5*
Martin Springs	17C2	4400	1/26	58	19.9	11.4	8.4*
KLICKITAT RIVER							
Satus Pass	20D1	4030	1/27	50	13.8	16.6	8.1*
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	12/27	110	29.7	32.7	15.4*
			1/27	152	54.4	53.4	29.4*
Surprise Lakes	21C13A	4250	12/27	118	35.0	33.3	18.5*
			1/27	178	66.8	57.8	32.7*
WIND RIVER							
Old Man Pass	21D19	3100	12/28	54	12.9	15.9	4.1*
			1/28	83	26.8	29.2	12.5*
LEWIS RIVER							
Blue Lake +	21C22a	4800	12/27	170	51.0	57.6	30.1*
			1/27	250	92.5	85.0	56.0*
Bob's Trail	21C21	2200	12/27	54	13.0	12.9	6.3*
			1/28	79	26.7	22.3	9.7*
Calamity Ridge +	22D1a	2500	12/28	52	12.5	7.8	--
			1/28	60	20.4	12.5	--
Council Pass +	21C18a	4200	12/27	98	28.4	29.7	18.4*
			1/27	156	56.2	50.2	27.4*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 10

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
LEWIS RIVER (Cont.)							
#Cultus Creek	21C12	4000	12/27	110	29.7	32.7	15.4*
			1/27	152	54.4	53.4	29.4*
Divide Meadow +	21C29a	5600	12/27	104	33.3	35.8	24.7*
			1/27	193	71.4	57.7	39.5*
Grand Meadow	21C25	3500	12/27	73	19.1	16.2	9.7*
			1/27	109	37.1	30.4	16.9*
Lone Pine Shelter	21C26	3800	12/28	108	30.0	30.7	17.7*
			1/28	135	49.9	49.7	28.8*
Marble Mountain +	22C5a	3200	12/27	95	26.6	20.7	10.5*
			1/27	136	57.1	49.4	24.4*
#Mosquito Meadows	21C19	4100	12/28	106	30.6	32.6	19.2*
			1/28	144	51.9	52.6	31.8*
New Muddy River	22C6	2200	12/28	46	13.0	12.4	5.8*
			1/28	62	21.6	16.0	9.9*
Old Man Pass	21D19	3100	12/28	54	12.9	15.9	4.1*
			1/28	83	26.8	29.2	12.5*
Plains of Abraham +	22C1a	4400	12/27	166	49.8	51.2	22.1*
			1/27	186	70.7	68.4	39.0*
Smith Creek Road	22C4	2100	12/28	66	19.6	20.3	6.5*
			1/28	80	29.0	28.8	11.9*
Spencer Meadow +	21C20a	3400	12/28	86	20.6	20.5	7.8*
			1/28	98	34.3	35.5	14.3*
Surprise Lakes	21C13A	4250	12/27	118	35.0	33.3	18.5*
			1/27	178	66.8	57.8	32.7*
Table Mountain +	21C24a	4200	12/27	108	31.3	34.2	21.1*
			1/27	160	59.2	57.0	32.1*
Timbered Peak +	21D18a	3000	12/28	80	19.2	15.6	7.6*
			1/28	76	25.8	26.2	12.5*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	12/27	163	51.2	51.5	34.3*
			1/27	255	89.8	89.6	56.3*
Mosquito Meadows	21C19	4100	12/28	106	30.6	32.6	19.2*
			1/28	144	51.9	52.6	31.8*
Ohanapecosh	21C32	2200	12/28	42	11.0	7.9	4.2*
			1/28	76	23.9	27.5	13.7*
Packwood Lake	21C31	2870	12/27	44	11.2	7.7	4.0*
			1/27	82	26.8	20.1	8.6*
Pigtail Peak	21C33	5900	12/28	116	37.2	27.8	26.0*
			1/27	214	76.5	60.8	40.9*
Plains of Abraham +	22C1a	4400	1/27	186	70.7	--	39.0*

Not located directly on this drainage
* Adjusted 1953-67 average
+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
COWLITZ RIVER (Cont.)							
Potato Hill	21C14	4500	12/27	82	22.7	21.3	--
			1/28	127	45.6	38.3	20.8*
#White Pass (E. Side)	21C28	4500	12/1	22	5.1	6.9	--
			12/15	53	11.8	9.9	8.5*
			12/30	57	17.3	15.4	11.1*
			Not Measured			20.4	13.7*
			1/25	112	40.9	29.9	16.7*
#White Pass (L. Lake)	21C27	4500	12/28	66	18.9	12.7	13.3*
			1/27	132	46.9	33.1	20.6*
Willame Creek	21C30	3250	12/27	78	22.0	17.2	9.6*
			1/27	132	41.8	38.4	21.4*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	12/27	103	31.5	16.0	13.1*
			1/28	171	60.0	54.3	30.7*
Longmire	21C3	2760	12/27	40	11.8	4.7	2.2*
			1/28	74	23.8	21.2	7.3*
New Paradise Park	21C35	5400	12/27	135	46.6	32.6	22.2*
			1/31	222	85.8	70.2	46.1*
Stem Glade	21C1	5050	12/27	137	40.7	37.3	24.8*
			1/31	225	84.9	71.1	47.1*
WHITE RIVER							
#Cayuse Pass	21C6	5300	12/27	163	51.2	51.5	34.3*
			1/27	255	89.8	89.6	56.3*
GREEN RIVER							
Airstrip	21B24	1800	11/30	0	0.0	--	--
			12/30	22	6.4	7.0	--
			1/28	25	10.1	6.6	--
Charley Creek	21B25	1200	11/30	0	0.0	--	--
			12/30	12	4.2	4.0	--
			1/28	9	2.2	0.4	--
Cougar Mountain	21B42SP	3200	12/27	61	14.8	--	--
			1/30	85	31.2	23.8	--

Not located directly on this drainage
* Adjusted 1953-67 average
+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-2202 8-0

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
GREEN RIVER (Cont.)							
Grass Mountain #2	21B27	2900	11/30	6	2.0	--	2.7*
			12/30	56	17.0	13.3	6.0*
			1/28	85	31.1	29.2	13.6*
Grass Mountain #3	21B28	2100	11/30	0	0.0	--	--
			12/30	30	9.8	7.8	--
			1/28	45	15.0	11.0	--
Lester Creek	21B29	3100	11/30	16	4.2	--	3.5*
			12/30	59	18.4	11.2	9.8*
			1/28	90	31.8	24.4	16.3*
Lynn Lake	21B50	4000	11/30	10	2.5	--	--
			12/30	68	23.5	9.3	--
			1/28	93	43.2	32.0	--
Sawmill Ridge	21B31	4700	11/30	27	7.2	--	8.0*
			12/30	75	24.0	17.8	12.0*
			1/28	128	49.6	41.4	27.8*
Snowshoe Butte	21B43SP	5000	12/27	99	31.4	20.6	--
			1/30	183	72.4	--	--
Stampede Pass	21B10	3000	12/2	32	7.2	--	7.4*
			12/17	84	22.8	--	10.8*
			1/2	87	16.6	19.0	16.9*
			1/18	154	38.6	26.3	21.4*
			1/31	159	50.0	27.8	28.8
Twin Camp	21B30	4100	11/30	27	7.2	--	5.3*
			12/30	56	17.5	13.0	10.8*
			1/28	80	30.0	26.8	19.3*
SNOQUALMIE RIVER							
#Olallie Meadows	21B2	3625	1/30	146	59.7	49.4	30.2*
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	10/28	11	2.4	2.5	--
			11/15	21	6.3	3.8	--
			11/29	45	10.6	12.1	10.0*
			12/15	98	21.2	23.4	14.7*
			12/29	103	30.3	33.5	20.8
			1/14	139	46.0	41.7	26.6
			1/27	162	60.1	52.5	34.4
#Stevens Pass S. Shed	21B45	4070	11/15	12	3.1	--	--
			11/29	29	5.6	8.6	--
			12/15	72	14.6	17.5	--
			12/29	72	21.1	25.3	--
			1/14	102	32.9	30.2	--
			1/27	120	42.7	40.1	--

Not located directly on this drainage
* Adjusted 1953-67 average

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	1/29	55	16.0	22.2	--
Beaver Pass	21A1	3680	1/29	100	34.6	36.3	--
Brown Top Ridge +	21A28a	6000	Not Measured			60.2	--
#Cloudy Pass +	20A22a	6500	Late Report			31.4	29.4*
Devils Park	20A4	5900	1/28	138	45.9	41.4	30.2*
Freezeout Cr. Trail	20A1	3500	1/28	59	18.2	17.9	--
Freezeout Meadow	20A2	5000	Avalanched out			31.3	--
Granite Creek	21A29A	3500	Not Measured			21.2	--
#Harts Pass	20A5A	6500	1/28	134	44.3	44.6	28.2
Klesilkwa	Canada	3700	Late Report			17.4	10.5**
Lake Hozomeen	21A2	2600	1/28	46	12.5	13.2	--
#Lyman Lake	20A23A	5900	Late Report			47.7	38.9*
Meadow Cabins	20A8	1900	1/27	48	13.0	11.0	--
New Hozomeen Lake	21A30	2800	1/28	58	16.0	17.7	--
New Tashme	Canada	2500	2/1	60	20.0	15.1	8.2**
#Rainy Pass	20A9	4780	1/27	134	43.8	39.8	27.5
Thunder Basin	20A7	4200	1/27	89	27.4	23.3	--
BAKER RIVER							
Baker Pass +	21A27a	4900	Not Measured			--	--
						--	--
Dock Butte +	21A11A	3800	12/18	127	38.1	23.5	--
			1/3	130	45.5	33.6	--
			1/27	185	70.3	77.8	46.8*
Easy Pass +	21A7A	5200	12/18	110	33.0	22.5	--
			1/3	116	40.6	36.0	--
			1/27	191	72.6	--	59.0*
Jasper Pass +	21A6A	5400	12/18	165	49.5	36.0	--
			1/3	164	57.4	50.4	--
			1/27	235	89.3	99.0	68.5*
Marten Lake	21A9A	3600	1/3	163	57.0	36.0	--
			1/27	216	82.1	--	56.4*
Mt. Blum +	21A18a	5800	12/18	117	35.1	16.0	--
			1/3	119	41.6	27.0	--
			1/27	144	54.7	53.6	46.5*
#Panorama New	21A26	4300	1/14	148	53.7	54.3	--
			2/1	169	71.3	73.3	--
Rocky Creek	21A12A	2100	12/18	68	20.4	11.8	--
			1/3	75	26.2	22.5	--
			1/27	117	44.5	53.1	19.6*
Schreibers Meadow	21A10A	3400	12/18	100	30.0	22.0	--
			1/3	118	41.3	35.1	--
			1/27	148	56.2	68.4	42.5*

\# Not located directly on this drainage
** Average for years of record
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
BAKER RIVER (Cont.)							
S. F. Thunder Cr. +	21A14A	2200	1/3	40	14.0	9.9	--
			1/27	60	22.8	21.2	4.6*
Watson Lakes +	21A8A	4500	12/18	118	35.4	22.5	--
			1/3	134	46.9	34.8	--
			1/27	180	68.4	--	46.0*
NOOKSACK RIVER							
			12/2	16	4.1	4.9	--
Glacier Creek	21A23	3700	1/3	56	15.6	10.3	--
			2/3	88	32.5	--	--
Panorama New	21A26	4300	1/14	148	53.7	54.3	--
			2/1	169	71.3	73.3	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	1/28	77	24.6	21.9	16.3*
MORSE CREEK							
Cox Valley	23B14	4500	1/31	136	47.6	42.7	--
ELWHA RIVER							
Hurricane	23B3	4500	1/30	85	26.5	24.0	17.5*
SKYKOMISH RIVER							
Black & White	23B7	4200	12/27	89	24.2	29.8	--
			1/27	128	40.5	46.5	29.0*
Black & White Lakes	23B6	4700	12/27	115	37.6	43.0	--
			1/27	160	61.4	65.0	41.5*
Four Streams	23B10	3000	12/27	91	24.3	28.1	--
			1/27	106	33.2	41.1	--
Home Sweet Home	23B5	5200	12/27	151	48.0	52.7	--
			1/27	194	74.0	74.0	54.8*

* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

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AT URBANA-CHAMPAIGN

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAR. 1, 1972

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA SCS PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

JOHN A. BIGGS
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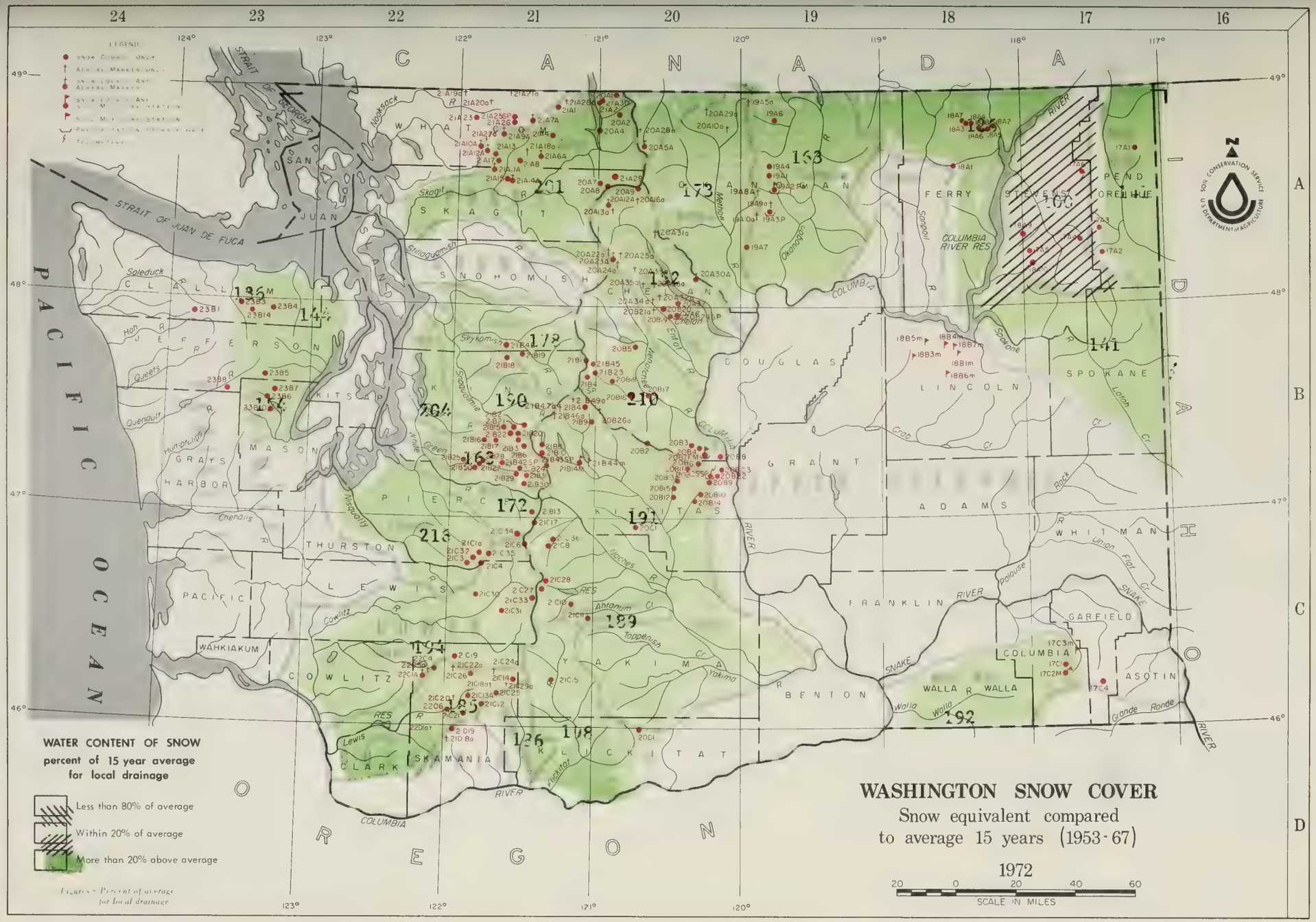
WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1953-67)
1972
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures - Percent of average for local drainage
CANADA
PACIFIC OCEAN
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CHELAN
DOUGLAS
OKANOGAN
FERRY
STEVENS
PEND OREILLE
LINCOLN
SPOKANE
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GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
BENTON
YAKIMA
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MASON
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PIERCE
JEFFERSON
CLALLAM
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT of AGRICULTURE

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B2SSP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

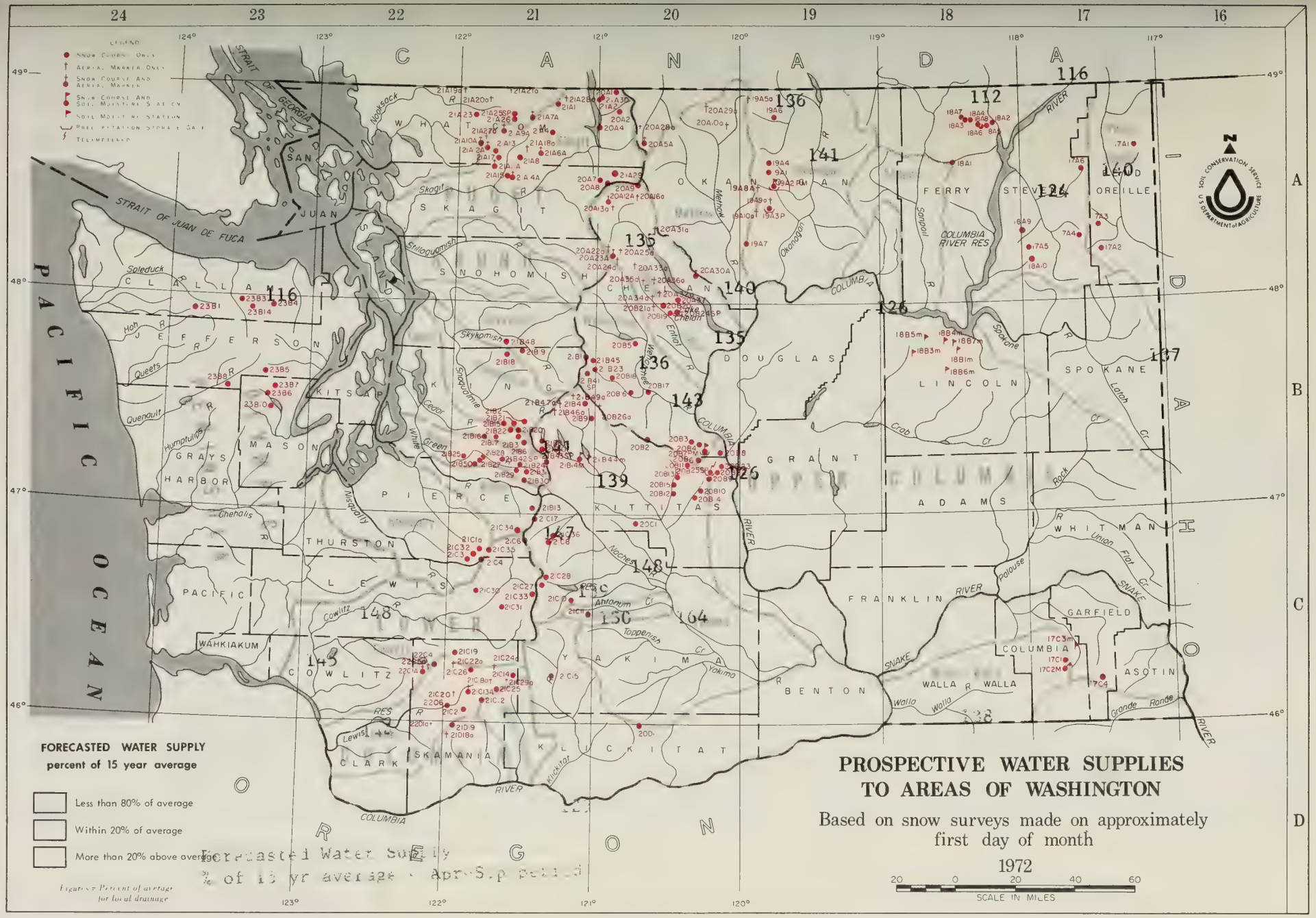
OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow


PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
1972
SCALE IN MILES
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
PACIFIC OCEAN
CANADA
IDAHO
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT of AGRICULTURE

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington
March 1, 1972

Record or near record streamflows are forecasted for the State of Washington and tributary streams during the 1972 runoff period. Flows are anticipated to reach volumes which were only exceeded one or two times, in most cases, in the history of the river gaging record. Even the flow at The Dalles, Oregon, is forecasted to be exceeded only by the giant flows which occurred in 1894. Of course, these flows are based on the fact that normal conditions will exist throughout the total runoff season. Drying winds could reduce the snowpacks immensely and reduce the resultant runoff while a wet spring together with above-normal temperatures could result in peak flows in excess of anything seen. The snowpacks are well above normal with only one drainage in the total State of Washington indicating normal snowpacks and this watershed has a short record of snow courses. The range of snow cover is from normal on the Colville River to a high of 116% greater than normal on the Nisqually. Much of this snowcover can be found at the lower elevations which normally tends to come off early in the season thereby sustaining streamflows from early runoff through the summer months. This low-elevation snowpack has a tendency to flash off early causing much local damage. Many of these snow courses were measured late in March and a few were not obtained at all. This was the result of the heavy storm period that existed over the mountains during the latter part of February and the first week of March. These storms put down a great deal of snow at higher elevations and rain at the valley stations. If this condition continues throughout the rest of March many streams will go out of their banks early in the runoff season and stay high throughout the runoff period.

Precipitation has been above normal throughout the winter season at all valley stations with the exception of the northeast section of Washington. This above-normal precipitation continues with February reporting as high as 126% greater than normal rainfall in the central area.

The reservoir storage has little meaning in a high-water situation that is in existence now because reservoir managers are attempting to lower their reservoirs for flood control purposes yet maintain flows below the reservoirs at flood stage or lower. For example, the Yakima drainage has high reservoir storage as of March 1 but these reservoirs cannot now be brought down due to the high uncontrolled inflow below the reservoirs.

Flows during the month were generally above normal with only the Columbia at Birchbank and the Similkameen near Nighthawk reporting below normal runoffs.

SNOW COVER

As stated above, the Colville watershed has a snowpack that is less than was measured the last two years and exactly normal. The Kettle River to the north, also, has a snowpack that is low in comparison to others in the state but its snow cover is 26% greater than normal. The range of snow cover for the Upper Columbia basin in Washington varies from this normal previously mentioned to 110% greater than normal for the Wenatchee River. The range on the Lower Columbia is from 85% above normal on the Lewis River to 98% above on the Klickitat. The Puget Sound drainage varies from 63% above normal on the Green River to a 116% greater for the Nisqually. On the Olympic Peninsula the range is from 36% above normal to 54% above.

RESERVOIRS

Only Franklin D. Roosevelt Lake, Chelan, and Ross Reservoir have less than normal amounts of water in storage as of March 1. All other reservoirs have more water in storage and one, Coeur d'Alene Lake, has greater than its capacity as of March 1. This is a result of the restricted outflow of Coeur d'Alene Lake.

PRECIPITATION

During the month of February the National Weather Service reported precipitation in the Columbia portion of Canada to be 56% greater than normal; 55% greater on the Pend Oreille-Spokane; 34% less in the northeastern area; 50% greater in the southeast; 126% greater in the central; 81% greater in the northcentral; and on the northwest slopes of the Cascades 90% greater. The southwest slopes of the Cascades had rainfall that was 55% greater than normal. These February precipitation figures are similar to the seasonal total from November through February only not as dramatic, percentagewise.

SOIL MOISTURE

The two soil moisture stations in the Yakima drainage are not measured due to the continued inoperation of the soil moisture meter. The other stations in the state report the soil to be wetted similar to what occurred during the last two years. Some stations have reported more moisture and some less but a similar situation on the average.

STREAMFLOW

As stated above, all streams were reported to have above-normal runoff during February with the exception of Columbia at Birchbank and the Similkameen River. This is the result of above-normal precipitation previously mentioned. Much of the low-elevation snowpack is still on the ground with only that occurring at very low elevations running off. The forecasts of streamflows range from 12% above normal for the Kettle River near Laurier to a high of 64% above normal for the Yakima at Parker. Many of these forecasted flows, as mentioned previously, are for record amounts and most are for second and third highest of record. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MARCH 1972

following summarized runoff forecasts are based principally on mountain snow er and on the assumption that precipitation and temperature will be near average n the present time to the end of the forecast period. Appreciable deviations m normal of temperature and/or precipitation will correspondingly modify these ecasts. Streamflow figures for 1972 are preliminary and subject to revision.

in, Stream tion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr Average 1953-67
		COLUMBIA BASIN					
umbia River System							
umbia River	53800	116	Apr-Sep	48592	34553	48001	46368
t Birchbank 1/	44200	118	Apr-Jul	39462	27931	40567	37480
	32450	120	Apr-Jun	29759	20952	32193	27040
umbia River t Grand Coulee 1/	87400	126	Apr-Sep	75360	54617	74617	69458
	75400	128	Apr-Jul	64444	46563	65587	58899
	59200	129	Apr-Jun	51550	37574	54513	45889
umbia River L Rock Island Dam 1/	96350	126	Apr-Sep	84965	58544	79675	76241
	81800	126	Apr-Jul	73096	50236	70515	64777
	65500	130	Apr-Jun	58245	40675	58851	50387
umbia River t The Dalles, OR 1/	135500	129	Apr-Sep	123427	88146	112281	105176
	117100	130	Apr-Jul	107702	76054	100113	90050
	95580	132	Apr-Jun	88936	62847	85657	72410
d Oreille River System							
d Oreille River L Box Canyon	22450	140	Apr-Sep		14737	16166	16030
	20700	140	Apr-Jul		13676	15055	14788
	17850	140	Apr-Jun		11985	13033	12754
tle River System							
tle River r. Laurier	2150	112	Apr-Sep	2110	1099	2239	1918
	2040	112	Apr-Jul	2065	1068	2188	1821
	1860	113	Apr-Jun	1814	1004	2048	1644

Observed flow corrected for storage in any of the following reservoirs which are ve the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, R. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and page at F. D. Roosevelt Lake.

amflow Forecasts - March 1972 (Cont.)

n, Stream ion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr Average 1953-67
le River System (Cont.)							
ille River	190	124	Apr-Sep		94	270	153
Kettle Falls	175	125	Apr-Jul		86	256	141
	165	126	Apr-Jun		80	240	131
ane River System *							
ane River							
Post Falls ID 2/	4300	137	Apr-Sep			3552	3151
	4200	137	Apr-Jul			3463	3055
	4000	137	Apr-Jun			3350	2913
ogan River System**							
lkameen River							
. Nighthawk	2070	136	Apr-Sep	1924	850	1199	1525
	1950	138	Apr-Jul	1827	808	1150	1419
	1670	140	Apr-Jun	1552	739	1052	1197
ogan River							
. Tonasket	2455	141	Apr-Sep	2236	923	1448	1738
	2270	144	Apr-Jul	2080	864	1353	1578
	1920	146	Apr-Jun	1769	785	1231	1318
ow River System**							
ow River							
. Pateros	1480	140	Apr-Sep		622	1060	1054
	1380	141	Apr-Jul		587	1013	981
	1200	144	Apr-Jun		532	948	834
an River System							
an River							
Chelan 3/	1710	135	Apr-Sep	1559	905	1337	1266
	1540	138	Apr-Jul	1363	816	1230	1119
	1230	141	Apr-Jun	1009	683	1093	870
ekin River							
Stehekin	1220	135	Apr-Sep		678	961	904
	1050	136	Apr-Jul		589	853	772
	820	140	Apr-Jun		478	748	586
at							
. Ardenvoir	260	--	Apr-Sep		160	265	--
	240	--	Apr-Jul		148	249	--
	200	--	Apr-Jun		129	227	--

Forecasts made by J. Alden Wilson, Soil Conservation Service, Boise, Idaho.
These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.
Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.
Observed flow corrected for storage in Lake Chelan.

eamflow Forecasts - March 1972 (Cont.)

in, Stream and tion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
tchee River System							
tchee River	1810	136	Apr-Sep		1019	1443	1333
Plain	1660	138	Apr-Jul		941	1349	1204
	1350	142	Apr-Jun		804	1217	952
tchee River Peshastin	2590	143	Apr-Sep	2364	1416	1953	1814
	2360	143	Apr-Jul	2036	1318	1840	1651
	1880	143	Apr-Jun	1483	1132	1669	1316
ilt Basin . Wenatchee	157*		May-Sep			145*	
ma River System							
ma River . Martin 4/	205	141	Apr-Sep	195	131	156	145
	192	143	Apr-Jul	182	123	144	134
	173	149	Apr-Jun	142	114	136	116
ma River Cle Elum 5/	1350	139	Apr-Sep		866	1051	968
	1260	142	Apr-Jul		803	977	885
	1100	144	Apr-Jun		723	912	762
ma River . Parker 6/	2850	164	Apr-Sep		1491	1989	1738
	2800	163	Apr-Jul		1512	2005	1722
	2550	161	Apr-Jun		1461	1980	1583
ess River . Easton 7/	185	144	Apr-Sep	173	115	139	128
	177	145	Apr-Jul	164	112	134	122
	158	148	Apr-Jun	131	104	128	107
Elum River . Roslyn 8/	650	134	Apr-Sep	626	435	496	485
	600	135	Apr-Jul	567	402	473	445
	520	139	Apr-Jun	433	350	440	373
ing River . Nile 9/	220	147	Apr-Sep	187	129	150	150
	205	149	Apr-Jul	168	122	142	138
	170	149	Apr-Jun	118	107	133	114

Thousands of Miners' inches.
Observed flow corrected for storage in Lake Keechelus.
Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.
Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
Observed flow corrected for storage in Lake Kachess.
Observed flow corrected for storage in Lake Cle Elum.
Observed flow corrected for storage in Bumping Lake.

eamflow Forecasts - March 1972 (Cont.)

n, Stream ion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
ma River System (Cont.)							
ican River	190	147	Apr-Sep		128	138	129
. Nile	177	148	Apr-Jul		120	130	120
	147	148	Apr-Jun		106	120	99
on River							
Tieton Dam 10/	350	139	Apr-Sep	323	244	273	251
	307	143	Apr-Jul	268	207	244	215
	250	145	Apr-Jun	197	172	220	172
es River							
. Naches 11/	1330	148	Apr-Sep		841	994	899
	1230	150	Apr-Jul		779	926	819
	1060	152	Apr-Jun		694	857	698
num Creeks							
. Tampico 12/	64	130	Apr-Sep		43	57	49
	60	133	Apr-Jul		39	53	45
	55	138	Apr-Jun		35	49	40
r Columbia River System							
Creek							
. Walla Walla	40	138	Apr-Sep		27	32	29
	36	144	Apr-Jul		23	29	25
	34	148	Apr-Jun		21	27	23
s River							
Ariel 13/	1950	144	Apr-Sep		914	1613	1358
	1770	148	Apr-Jul		798	1431	1197
	1570	148	Apr-Jun		723	1303	1059
itz blw.							
yfield Dam	3200	148	Apr-Sep		1615	2230	2160
	2840	149	Apr-Jul		1425	2002	1908
	2420	150	Apr-Jun		1245	1802	1612
itz River							
Castle Rock 14/	4100	145	Apr-Sep		2134	2965	2818
	3680	148	Apr-Jul		1873	2641	2487
	3030	143	Apr-Jun		1652	2359	2119
OLYMPIC PENINSULA							
eness River System							
eness River							
. Sequim	200	116	Apr-Sep		136	195	172
	165	117	Apr-Jul		115	167	141
	125	119	Apr-Jun		89	139	105

Observed flow corrected for storage in Rimrock Lake.
Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
Observed flow of North and South Forks (combined).
Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

following tabulation of Washington stream basins presents the water content of snow about March 1, 1972, as per cent of the same date in 1971 and 1970 and rage of record.

butary Basin	No. of Courses Average	Years of Record	1972 Snow Water Expressed as per cent of 1971	1970	1953-67
		UPPER COLUMBIA BASIN			
end Oreille	13 - 15	8 - 35	119	150	141*
ettle	12	6 - 32	104	141	126*
olville	5	10 - 13	98	96	100*
pokane	5 - 6	15 - 35	134	158	141*
kanogan	28 - 30	5 - 34	138	183	163*
ethow	6 - 8	9 - 34	120	162	173*
helan	5	18	115	204	152*
ntiat	8	5 - 11	129	168	165*
enatchee	9 - 10	4 - 27	140	157	210*
akima	22	4 - 50	159	145	191*
htanum	2	30	142	120	189*
		LOWER COLUMBIA			
ill Creek	3	7 - 22	234	215	192*
lickitat	1	14	112	123	198*
hite Salmon	2	28	112	200	186*
ewis	16 - 17	9 - 14	112	297	185*
owlitz	10	8 - 20	125	233	194*
		PUGET SOUND			
isqually	4	6 - 15	128	302	216*
hite	2	20	122	190	172*
reen	5 - 9	10 - 25	132	239	163*
edar	6	11 - 13	278	307	204*
noqualmie	2 - 4	3	162	208	190*
kykomish	2 - 3	4 - 27	119	169	178*
kagit	9 - 11	14 - 24	137	280	201*
ooksack	1 - 2	2 - 4	121	247	--
		OLYMPIC PENINSULA			
kokomish	3 - 4	8 - 14	103	210	154*
lwha	1	12	129	208	136*
ungeness	1	18	138	176	144*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

IN or EAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (March) 1972	1971	1970	Normal*
		COLUMBIA				
kane	Coeur d'Alene Lake	225.1	248.0	154.2	148.1	149.4
umbia	Franklin D. Roosevelt Lake	5232.0	2735.6	4666.2	3464.7	2985.2
umbia	Banks Lake	761.8	714.9	712.2	605.4	511.7
nogan	Conconully Reservoir	13.0	9.6	5.8	7.4	6.1
nogan	Salmon Lake	10.5	8.6	2.1	7.6	8.5
lan	Lake Chelan	676.1	126.5	257.0	96.7	243.7
		YAKIMA				
ima	Keechelus Lake	157.8	151.9	123.0	59.6	99.0
ness	Kachess Lake	239.0	179.0	201.1	169.6	178.5
Elum	Lake Cle Elum	436.9	312.1	231.3	171.8	266.0
ping	Bumping Lake	33.7	9.2	5.2	7.2	11.0
ton	Rimrock Lake	198.0	139.6	122.9	89.0	124.1
		PUGET SOUND				
git	Ross Reservoir	1202.9	680.1	912.7	725.1	851.6
git	Diablo Reservoir	90.6	83.8	83.4	85.3	85.9
git	Gorge Reservoir	9.8	7.3	8.3	8.3	--

Based on Active Storage

15-year average 1953-67

SOIL MOISTURE - MARCH

nage Basin ion	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Mar. 1 1972	1971	1970
CREEK							
Woods	18B3m	2750	48	13.6	8.1	9.8	9.4
se	18B4m	2420	48	13.6	7.0	6.2	9.0
fels	18B5m	2380	48	13.6	8.8	7.7	8.4
nan	18B7m	2440	48	13.6	7.4	7.8	8.9
tridge	18B6m	2290	48	13.6	8.7	10.5	9.8
OGAN							
on Meadows	19A2M	4500	48	5.4	3.6	3.6	2.4
t Creek	3-M	3600	48	7.3	4.0*	3.2*	3.3*
MA							
ry Flat	21B20m	2200	48	6.9	Not Measured	5.0	6.0
Cle Elum	21B14M	2200	48	12.8	Not Measured	9.2	9.2
A WALLA							
e	17C3m	3650	48	11.1	10.8	10.1	10.5
ers	17C2M	4400	48	12.0	11.6	10.7	10.9
TCHEE							
r Wheeler	20B7M	4400	48	12.7	10.0	10.1	7.1

eb 1 measurement

FALL SOIL MOISTURE

nage Basin ion	Number	Elev.	Profile Depth	(Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1971	1970	1969
CREEK							
Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
se	18B4m	2420	48	13.6	5.0	4.4	5.9
fels	18B5m	2380	48	13.6	5.3	4.4	4.5
nan	18B7m	2440	48	13.6	4.0	3.8	4.2
tridge	18B6m	2290	48	13.6	5.5	7.8	5.4
OGAN							
on Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
t Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
MA							
ry Flat	21B20m	2200	48	6.9	2.1	2.4	--
Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
A WALLA							
e	17C3m	3650	48	11.1	6.2	5.9	6.1
ers	17C2M	4400	48	12.0	8.2	7.3	7.1
TCHEE							
r Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

ov 1 measurement

PRECIPITATION [1]

Division Averages and Departures

age ions	Sep - Oct 1971 [2] Average	Departure	Nov - 1971 - Feb - 1972 [2] Average	Departure
bia in Canada	4.45	+ 0.56	15.24	+ 4.05
Oreille - Spokane	4.63	+ 0.48	18.48	+ 3.00
eastern Washington	3.16	+ 0.91	8.33	- 1.12
eastern Washington	3.73	+ 1.08	12.06	+ 1.72
al Washington	4.15	- 0.29	34.07	+10.39
Central Washington	1.99	+ 0.58	8.26	+ 2.72
west Slope Cascades	11.60	- 0.07	55.49	+10.98
west Slope Cascades	9.33	+ 1.61	45.41	+10.92

eastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
eastern Washington	- Touchet, Tucannon and Palouse drainages.
al Washington	- Yakima, Wenatchee and Chelan drainages.
Central Washington	- Methow and Okanogan drainages.
west Slope Cascades	- Puget Sound drainages.
west Slope Cascades	- Lower Columbia drainages.

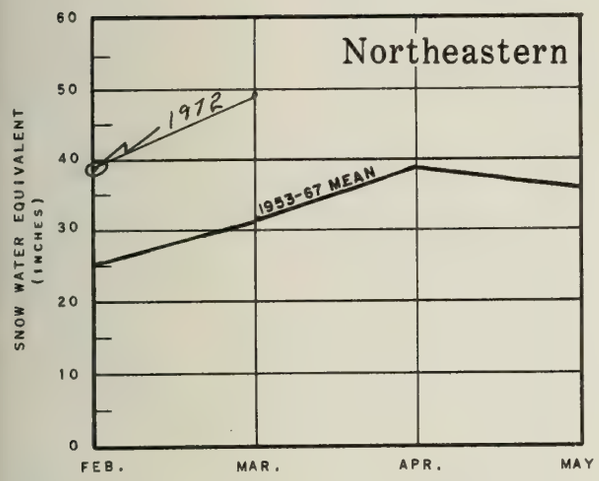
Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service.

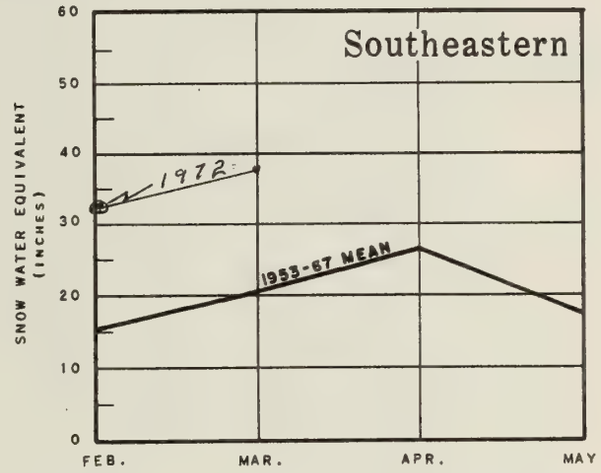
Departure from 15-year (1953-67) drainage division average.

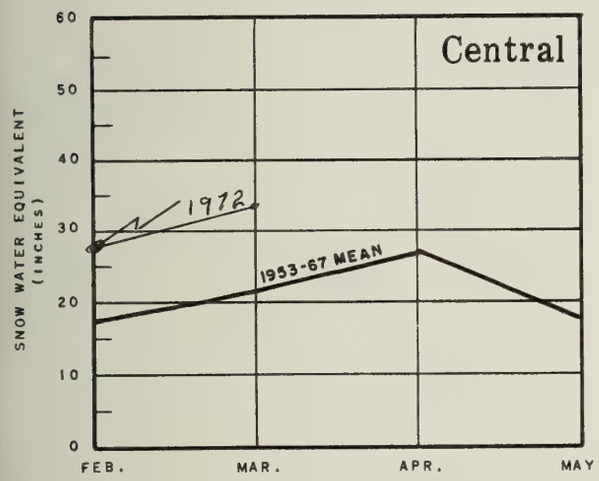
WASHINGTON SNOW COVER

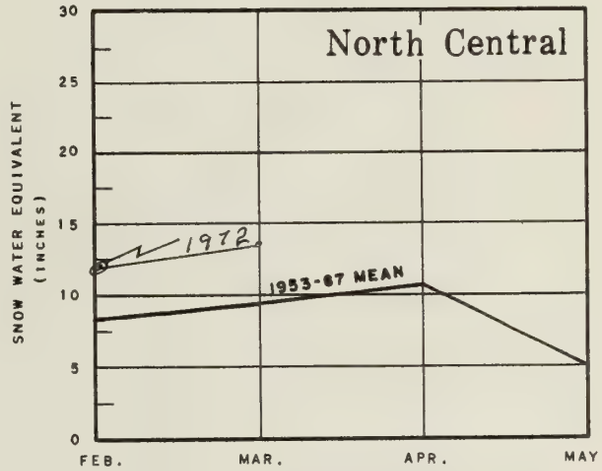
1972

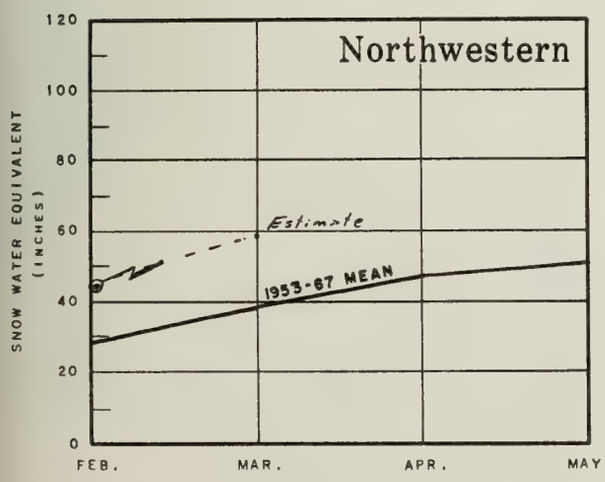
DRAINAGE AREAS

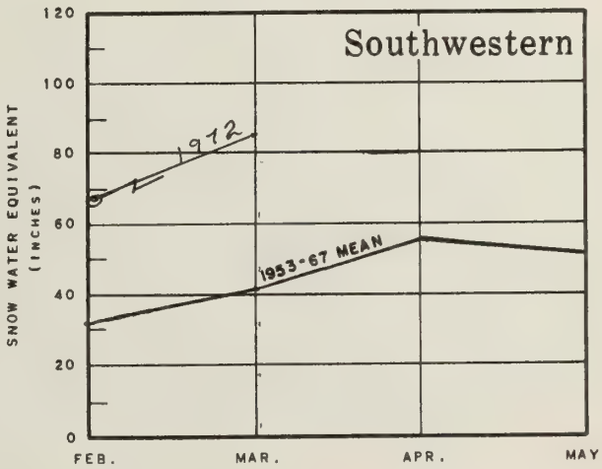










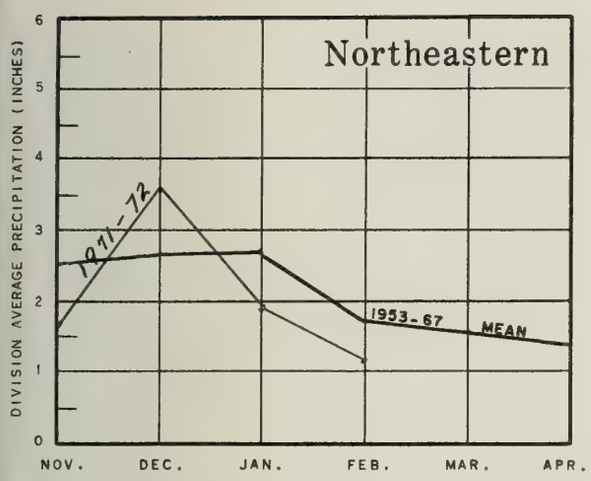


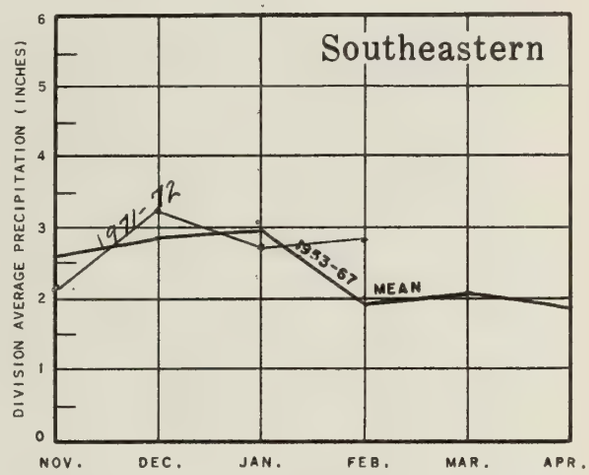
Selected Snow Survey Courses by Soil Conservation Service

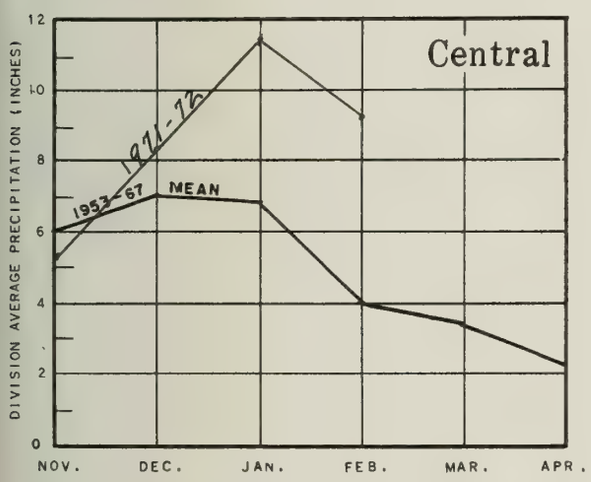
WASHINGTON VALLEY PRECIPITATION

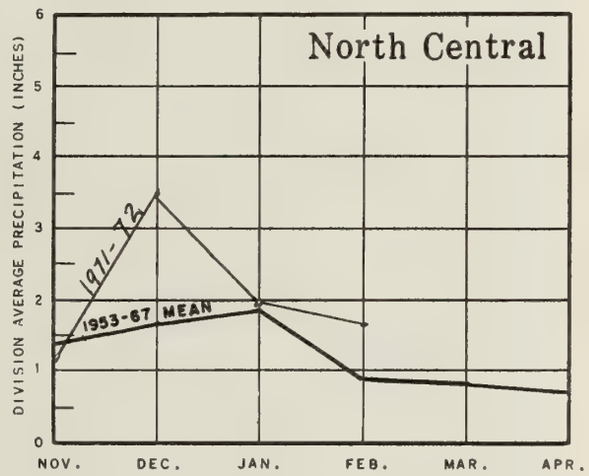
1971-1972

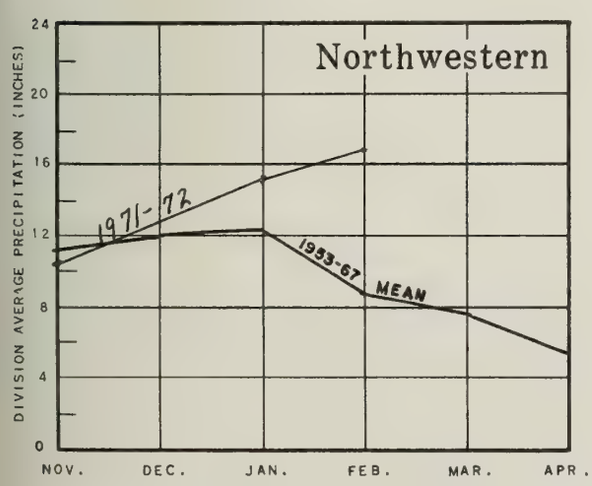
DRAINAGE AREAS

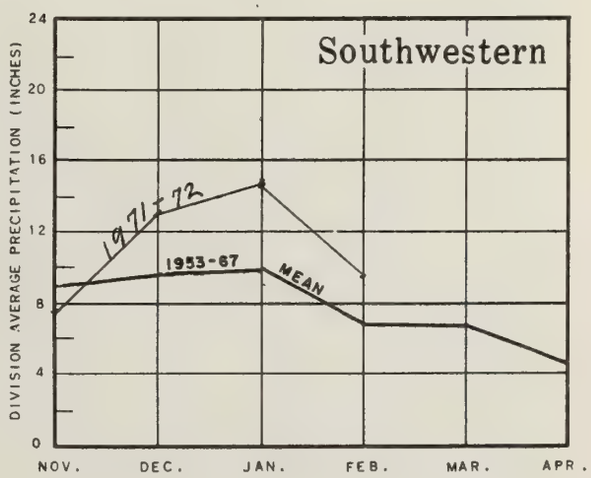












Preliminary Analysis by National Weather Service

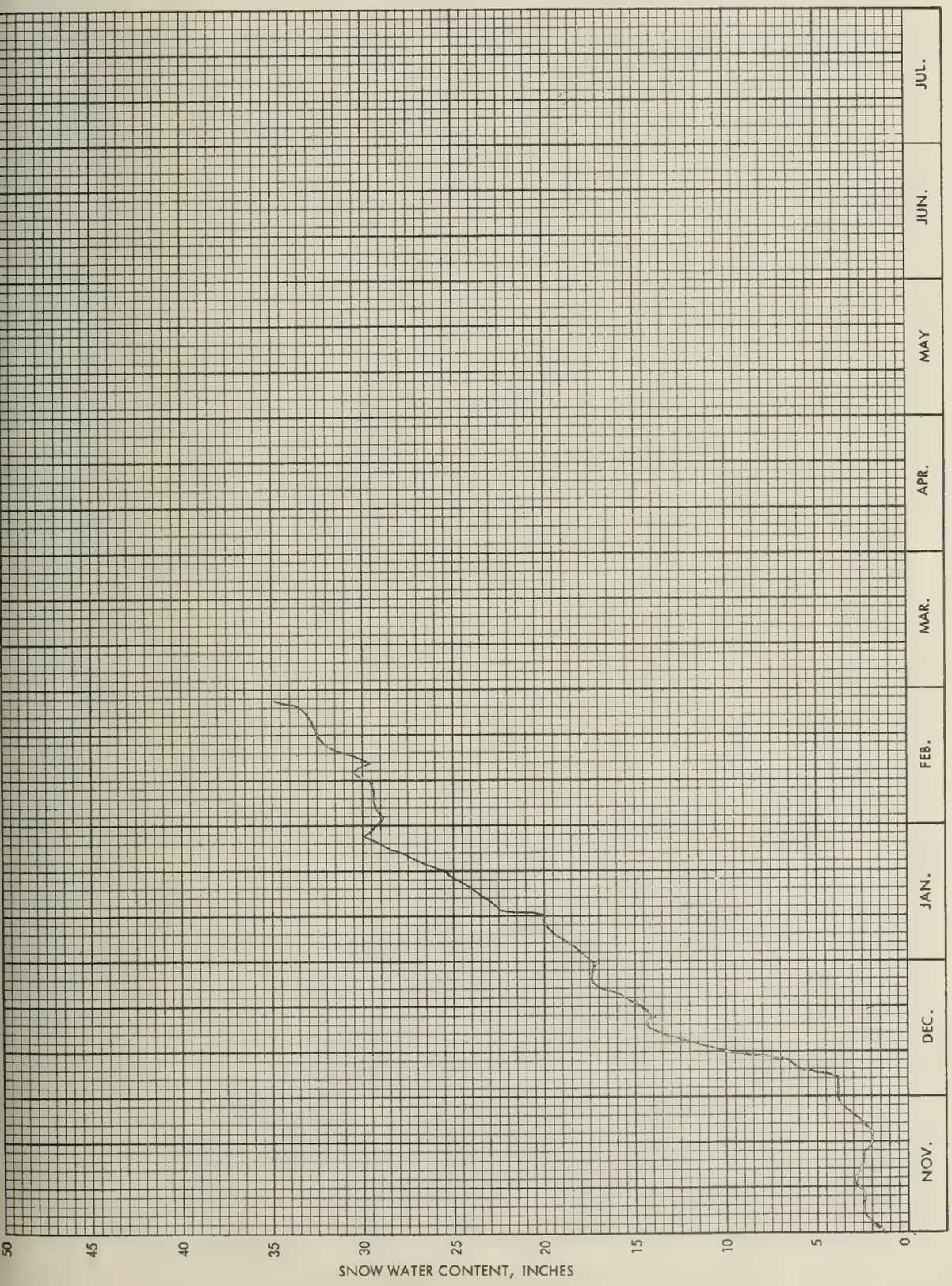
Berne-Mill Creek

SNOW PILLOW DATA

AS OF March 1, 1972

Sec. 13 T. 26N R. 14E No. W1B41SP Drainage: Wenatchee R.

Lat. 47° 45' Long. 121° 41' Elev. 3240



M7-0-22028-C1-L

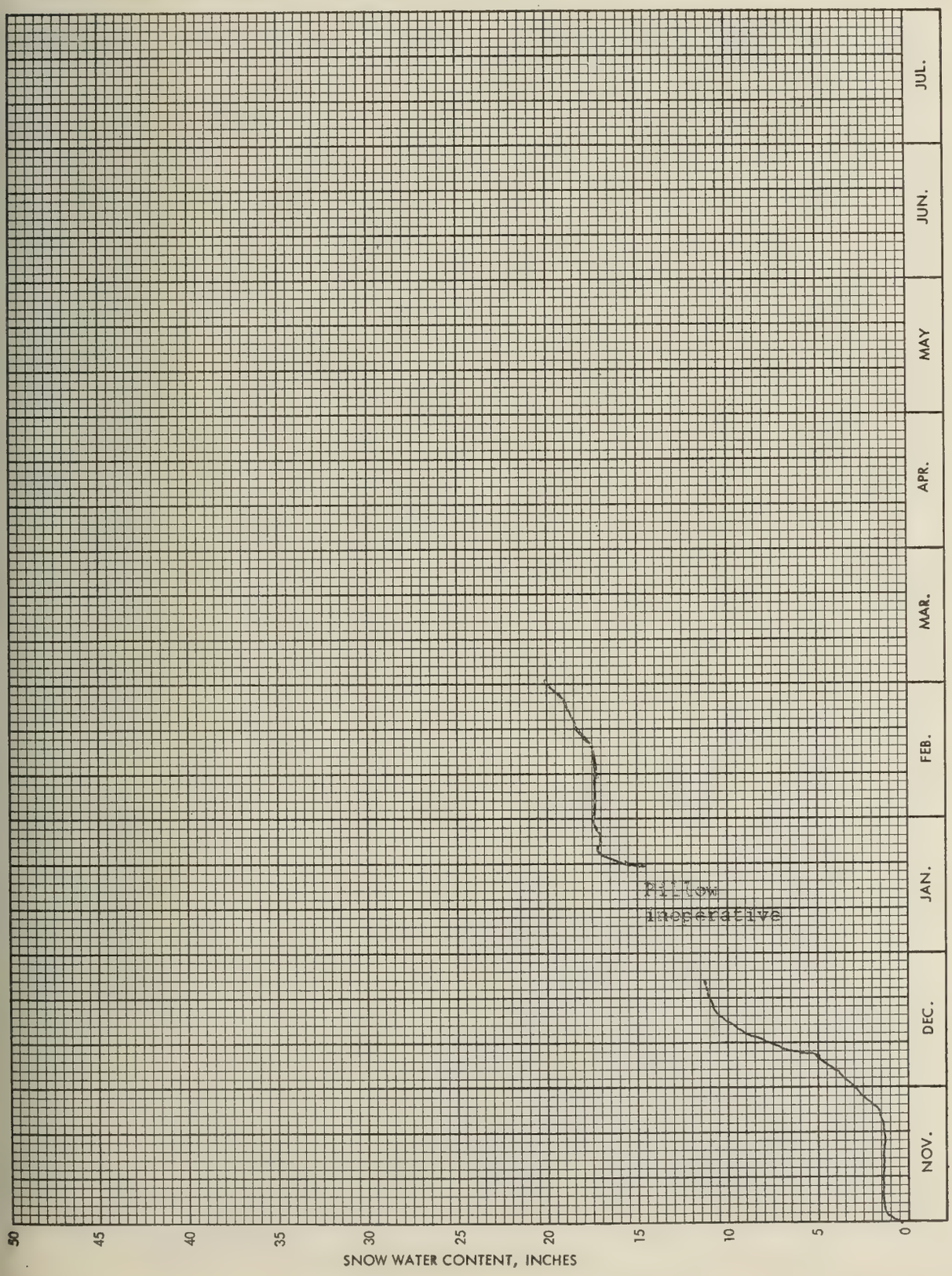
SNOW PILLOW DATA

Trough No. 2

1971-72

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Wenatchee R.

Lat. 47° 14' Long. 120° 19' Elev. 5310



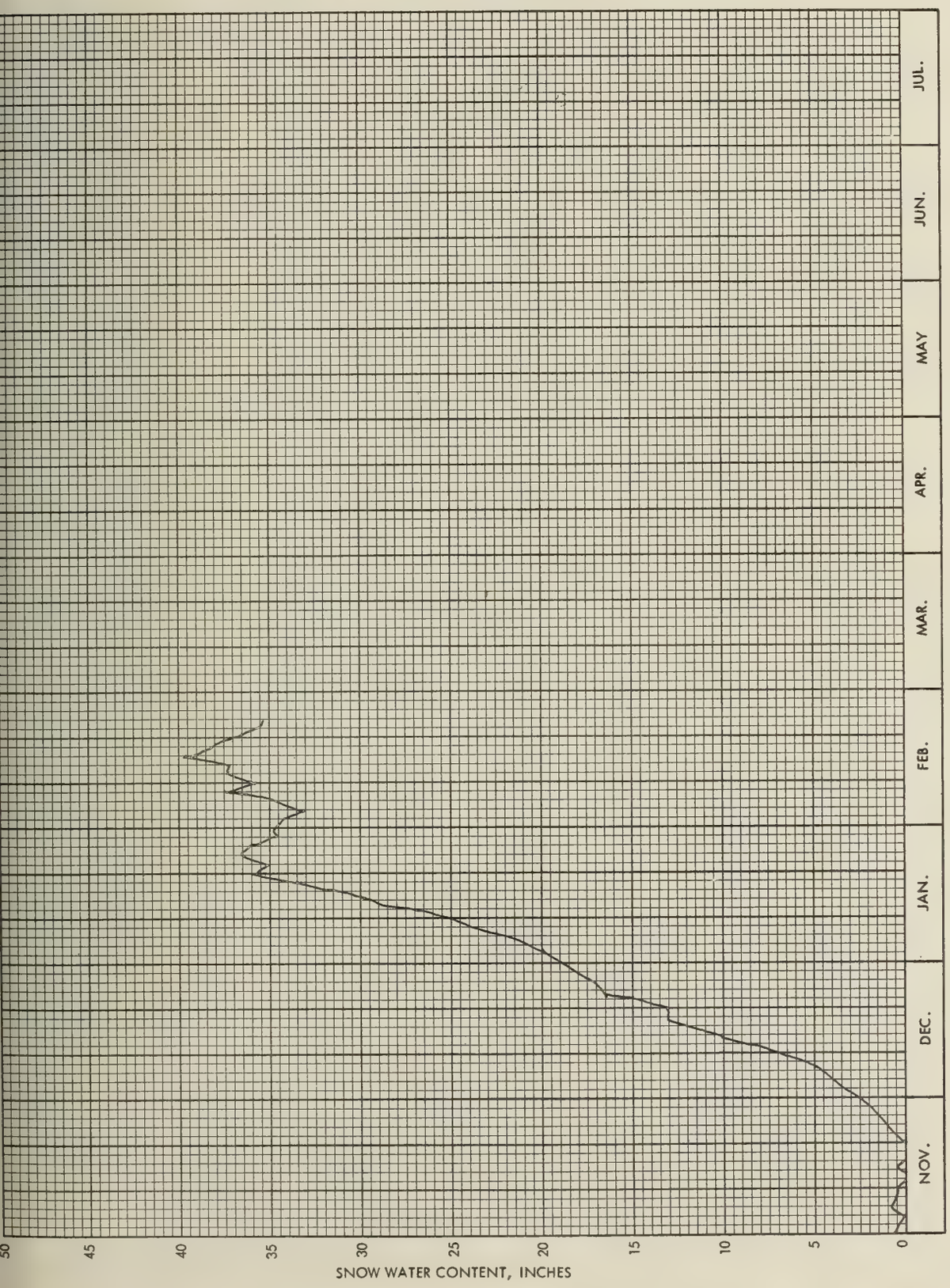
Cougar Mountain - FS

SNOW PILLOW DATA

AS OF March 1, 1972

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



APPENDIX 1
SNOW DATA FEBRUARY 1 to MARCH 1, 1972

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Benton Meadow	16A2	2344	2/29	13	4.3	7.1	5.8
Benton Spring	16A3	4900	3/1	59	22.0	16.3	18.2
Baree Creek	15B11	5500	2/29	158	64.5	48.0	43.5
Baree Midway	15B16	4600	2/29	134	53.9	38.8	33.8
Baree Trail	15B15	3800	2/29	43	17.4	13.0	8.2
Boyer Mountain	17A2	5250	2/29	64	24.0	27.6	23.4
Brush Creek	14A4	5000	2/29	50	16.8	11.4	11.7
#Chewelah	17A4	4925	2/26	41	12.4	14.9	16.5
Heart Lake Trail	14C10	4800	2/29	101	39.2	28.4	20.2*
Hoodo Basin	15C10	4800	2/29	171	68.6	56.2	45.6
Hoodo Creek	15C1	5200	2/29	176	68.8	51.6	42.5
Lookout	15B2	5250	2/29	134	49.3	40.0	32.3
Mosquito Ridge	16A4A	5100	2/29	Pillow	40.0	41.1	33.8*
Nelson	Canada	3750	2/28	63	18.5	14.6	14.5**
Schweitzer Bowl	16A6	4500	3/1	88	37.0	31.5	--
Schweitzer Ridge	16A7	4100	3/1	123	49.7	43.3	--
Winchester Creek	17A3	2970	2/25	56	12.0	17.9	11.5*
KETTLE RIVER							
Barnes Creek	Canada	5300	3/3	71	23.9	19.8	17.8**
Big White Mountain	Canada	5500	2/28	59	20.0	16.0	16.9**
Boulder Road	18A2	1450	2/10	20	4.6	7.3	4.3*
			2/24	21	5.7	7.0	3.5*
Butte Creek	18A3	4070	2/10	31	8.6	8.6	8.1*
			2/24	34	9.7	9.3	8.7*
Cabin Creek	18A8	3170	2/10	28	8.2	7.8	7.5*
			2/24	31	8.7	8.7	7.7*
Carmi	Canada	4100	2/28	34	9.0	6.8	6.0**
Farron	Canada	4000	2/29	42	13.2	13.7	12.3**
Goat Creek	18A4	3595	2/10	26	7.0	8.2	6.9*
			2/24	26	7.0	7.6	6.6*
Lower Trapping Cr.	Canada	3050	2/28	31	6.2	6.0	5.1**
#Monashee Pass	Canada	4500	3/3	54	17.4	12.9	12.6**
Old Glory Mountain	Canada	7000	2/26	89	32.2	27.8	24.3**
Snow Caps Creek	18A5	2150	2/10	23	5.2	6.8	4.6*
			2/24	22	5.5	7.0	4.2*
Snow Caps Trail	18A6	2720	2/10	25	6.5	7.2	6.1*
			2/24	25	7.0	8.1	6.1*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 2

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
KETTLE RIVER (Cont.)							
Summit Guard Station	18A7	4600	Not Measured			6.3	8.0*
						6.9	8.3*
Upper Trapping Cr.	Canada	5500	2/28	39	12.6	9.5	8.5**
COLVILLE RIVER							
Baird	17A6	3215	2/26	30	8.6	5.5	7.0*
Carlson	18A9	2885	2/26	15	4.6	4.2	4.8*
Chewelah	17A4	4925	2/26	41	12.4	14.9	16.5*
Stranger Mtn.	17A5	4990	2/26	35	10.8	17.0	12.4*
Togo	18A10	3370	2/26	36	11.3	14.6	9.4*
SPOKANE RIVER							
Above Burke	15B8	4100	2/29	95	29.2	28.6	--
Copper Ridge	16B2	4800	3/1	94	34.2	28.4	26.0
Forty-nine Meadows +	15B3	5000	Late Report			32.8	28.6*
Fourth of July Summit	16B3	3100	2/29	40	13.2	8.1	10.5*
Granite Peak +	15B13A	6000	Late Report			41.3	41.8*
#Lookout	15B2	5250	2/29	134	49.3	40.0	32.3
Lost Lake +	15B14A	6000	Late Report			56.4	53.6*
Lower Sands Creek	16B1	3400	3/1	72	21.1	19.5	17.8
Medicine Ridge +	15B4A	6150	Late Report			43.2	43.6*
#Mosquito Ridge +	16A4A	5110	3/8	Pillow	43.0	41.1	33.8
Outlaw Creek +	15B12A	3750	Late Report			16.9	13.7*
Roland Summit +	15B5A	5200	3/8	152	54.7	34.8	34.6*
Sherwin	16C1	3200	2/28	72	24.8	13.4	14.1*
Sunset +	15B9A	5600	3/8	146	52.6	--	29.9*
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	3/1	33	8.6	4.4	5.9**
Blackwall Peak	Canada	6250	2/29	147	52.6	42.4	31.6**
Bouleau Creek	Canada	5000	2/28	45	14.3	13.0	10.3**
Bouleau Lake	Canada	4500	2/27	55	16.8	13.5	--
Brenda Mine	Canada	4800	2/28	63	19.5	14.1	--
Brookmere	Canada	4800	2/27	57	13.0	13.2	9.1**
Carrs Landing Lower	Canada	2250	2/27	21	4.8	1.0	1.5**
Carrs Landing Upper	Canada	3200	2/27	31	7.2	3.6	4.3**

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 3

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
OKANOGAN RIVER (Cont.)							
Clark +	19A8a	7000	Not Measured			22.7	18.0*
Enderby	Canada	6250	2/28	118	46.5	37.0	32.4**
#Freezeout Meadows	20A2	5000	Not Measured			--	28.2
Hamilton Hill	Canada	4900	2/26	77	26.6	--	13.3**
#Harts Pass	20A5A	6500	Late Report			49.6	38.5
#Horseshoe Basin +	19A5a	7000	3/3	79	28.4	21.6	11.6*
Isintok Lake	Canada	5510	2/26	46	14.1	8.2	6.8**
Lost Horse Mtn.	Canada	6300	Late Report			9.6	7.7**
#Loup Loup	19A7	4650	2/24	39	12.0	12.0	8.9*
Lower Esperon Creek	Canada	4270	2/27	48	14.9	13.3	10.6**
McCulloch	Canada	4200	2/26	33	9.0	7.1	6.2**
Middle Esperon Creek	Canada	4580	2/27	56	16.8	17.9	13.6**
Missezula Mountain	Canada	5100	Late Report			11.2	8.8**
Mission Creek	Canada	6000	2/28	66	23.3	22.9	17.2**
Monashee Pass	Canada	4500	3/3	54	17.4	12.9	12.6**
Mount Kobau	Canada	5950	2/29	50	15.3	13.3	11.9**
Muckamuck +	19A9a	6390	Not Measured			19.1	--
Mutton Creek No. 1	19A1	5700	2/24	63	21.8	15.9	12.3
Mutton Creek No. 2	19A4	6000	2/24	59	20.1	16.6	12.[illegible]
New Copper Mountain	Canada	4300	2/25	40	12.5	--	5.5**
New Penticton Res.	Canada	5225	2/25	48	12.3	7.2	--
Nickel Plate Mtn.	Canada	6200	2/28	51	13.1	11.9	6.9**
Paysayten +	20A28a	4300	Not Measured			23.2	14.2*
Postill Lake	Canada	4500	2/29	33	9.9	8.2	7.4**
Rusty Creek	19A3	4000	2/24	35	10.2	7.5	7.0
Salmon Meadows	19A2	4500	2/24	45	13.4	11.2	9.7
Silver Star Mtn.	Canada	6050	2/28	88	32.6	29.2	23.4**
Starvation Mtn. +	19A10a	6750	Not Measured			20.5	17.[illegible]*
Summerland Reservoir	Canada	4200	2/27	54	15.0	10.8	8.4**
Touts Coulee	19A6	2845	2/28	22	6.1	5.2	3.7*
Trout Creek	Canada	4700	2/26	48	13.0	8.4	6.3**
Upper Esperon Creek	Canada	5290	2/27	60	20.1	21.9	17.1**
Vaseux Creek	Canada	4050	2/26	34	7.8	8.8	--
White Rocks Mtn.	Canada	6000	2/28	77	27.5	24.7	18.5**
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	Marker Down			49.2	25.8*
Dollar Watch +	20A29a	7000	2/1	75	24.8	25.9	18.4
			3/3	115	41.4	32.4	23.7*
Harts Pass	20A5A	6500	Late Report			49.6	38.5
Horseshoe Basin +	19A5a	7000	2/1	58	19.1	14.1	9.7*
			3/3	79	28.4	21.6	11.6*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
METHOW RIVER (Cont.)							
Loup Loup	19A7	4850	2/25	39	12.0	12.0	8.9*
#Mutton Creek No. 1	19A1	5700	2/24	63	21.8	15.9	12.3
#Mutton Creek No. 2	19A4	6000	2/24	59	20.1	16.6	12.7
#Rusty Creek	19A3	4000	2/24	35	10.2	7.5	7.0
#Salmon Meadows	19A2	4500	2/24	45	13.4	11.2	9.7
#War Creek Pass	20A31a	6500	2/1	125	41.2	37.1	--
			3/3	145	52.2	60.0	--
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	2/1	122	40.3	31.4	29.4*
			Marker buried			48.8	34.9*
Greenwood Flat +	20A25a	3540	Marker buried			--	--
Little Meadows +	20A24a	5275	2/1	118	38.9	30.1	29.9*
			Marker buried			51.6	37.5*
Lyman Lake	20A23A	5900	Marker Down			72.4	50.3*
Park Creek Flat +	20A13a	2220	2/1	106	35.0	28.8	27.8*
			3/3	118	42.5	40.0	31.0*
Park Creek Ridge	20A12A	4600	2/1	185	61.0	38.7	35.3*
			3/3	194	69.8	54.8	41.7*
Petersons +	20A16a	3730	2/1	120	39.6	30.7	26.2*
			3/3	155	55.8	43.2	32.5*
Rainy Pass	20A9	4780	3/4	160	58.4	46.8	37.0
Safety Harbor	20A30A	6300	2/1	90	29.7	28.5	--
			Marker buried			39.2	27.2*
War Creek Pass +	20A31a	6500	2/1	125	41.2	37.1	--
			3/3	145	52.2	60.0	40.8*
ENTIAT RIVER							
Brief	20B19	1600	2/23	33	13.2	10.0	6.3*
Entiat Meadows +	20A33a	4800	3/4	154	64.7	51.1	42.7*
Entiat River Trail +	20A34a	3150	3/4	73	30.7	24.2	20.4*
Fox Camp +	20A36a	6510	3/4	188	79.0	56.9	50.7*
Pope Ridge	20B20	4300	2/28	67	28.3	21.6	17.3*
Pugh Ridge +	20A32a	6400	3/4	135	56.7	39.2	31.0*
Shady Pass	20A37	5000	Not Measured			32.0	--
Snow Brushy +	20A35a	3850	3/4	117	49.1	46.4	35.9*
Tommy Creek +	20B21a	5300	3/4	104	43.7	34.6	25.9*

\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average
\# Not located directly on this drainage

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 5

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
WENATCHEE RIVER							
Berne-Mill Creek	21D23	2925	2/14	102	16.3	33.7	24.0*
			2/28	105	43.5	34.4	23.9*
Berne-Mill Cr. New	21B41SP	3040	2/28	77	33.0	32.8	21.7*
Blewett Pass No. 2	20B2	4270	2/25	79	32.9	19.4	13.8
Chiwaukum C. S.	20B16	1810	2/14	53	19.4	15.5	10.5*
			2/28	55	21.4	16.1	10.5*
Fish Lake	21B4	3071	2/29	127	55.2	46.4	31.7*
Lake Wenatchee	20B5	1970	2/14	73	23.3	19.3	13.0*
			2/28	71	26.8	18.8	13.4*
Leavenworth R. S.	20B17	1127	2/14	32	10.8	6.7	4.5*
			2/29	26	9.0	4.5	2.6*
Lyman Lake	20A22A	5900	Marker Down			72.4	50.3*
Merritt	20B18	2140	2/14	73	27.4	19.2	14.6*
			2/28	77	30.6	19.1	13.7*
Stevens Pass	21B1	4070	2/14	163	64.0	58.7	40.3
			2/28	171	77.3	62.1	44.4
Stevens Pass Sand Sh.	21B43	3700	2/14	124	47.4	41.0	--
			2/28	126	55.0	43.3	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	2/29	33	14.0	5.7	6.5*
Scout-A-Vista	20B4	3400	2/29	31	13.0	8.8	7.0*
STEMILT CREEK							
Jump-Off	20B8	4430	2/28	45	15.8	7.0	6.8*
Stemilt Slide	20B6	5030	2/28	61	24.1	14.1	12.6*
Upper Wheeler	20B7	4400	2/28	43	21.0	9.1	8.5*
COLOCKUM CREEK							
Colockum Cr. Upper	20B22	5300	2/25	57	24.0	11.0	--
Colockum Cr. Lower	20B23	4300	2/25	42	16.2	8.9	--
YAKIMA RIVER							
Ahtanum R. S.	21C11	3100	2/25	31	11.8	7.1	5.9*
Big Boulder Creek	21B9	3200	2/26	84	34.2	26.7	18.5*
Blewett Pass No. 2	20B2	4270	2/25	79	32.9	19.4	13.8
Bumping Lake	21C8	3450	2/16	53	20.6	21.2	15.1*
			3/1	67	20.4	22.8	15.3

* Adjusted 1953-67 average
* Not located directly on this drainage

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG 1971 M7-0-22028-0

APPENDIX 6

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
YAKIMA RIVER (Cont.)							
Bumping Lake New	21C36	3400	2/16	65	26.2	25.6	17.9*
			3/1	75	26.9	26.4	18.0*
Cayuse Pass	21C6	5300	3/4	280	112.2	102.7	71.6*
Colockum Pass	20B9	5370	2/25	62	21.6	17.4	14.9*
Cooke Creek	20B10	4123	2/25	40	14.1	7.5	5.6*
Corral Pass	21C13	6000	3/4	174	61.8	45.8	33.2*
Fish Lake	21B4	3371	2/26	127	55.2	46.4	31.7*
Green Lake	21C10	6000	2/25	118	45.8	38.8	25.7*
Grouse Camp	20B11	5385	2/28	66	24.9	15.5	16.1*
High Creek	20B12	2930	2/28	38	13.6	8.4	5.1*
Lake Cle Elum	21B14M	2200	2/17	60	22.0	4.4	8.5*
			2/28	50	22.2	4.7	8.5*
Lemah Creek +	21B47a	3327	Late Report			49.4	--
Manashtash	20C1	3935	2/23	28	9.1	3.8	4.0*
Morse Lake	21C17	5400	Not Measured			55.6	47.0*
Nanum	21B39	2340	2/28	48	18.9	10.6	9.8*
Olallie Meadows	21B2	3625	3/7	176	79.1	61.6	40.4
Satus Pass	20D1	4030	2/28	35	15.8	14.1	8.0*
Stampede Pass	21B10	3000	2/15	173	53.0	35.2	34.8
			2/28	157	49.8	36.3	38.4
Trail Creek	20B14	3360	2/25	25	10.1	0.0	--
Tunnel Avenue	21B8	2450	2/16	80	31.3	25.8	20.2*
			2/28	83	33.8	28.9	21.6
Van Epps Pass +	20B26a	5925	Late Report			63.2	--
Walters Flat	20B15	3360	2/28	35	13.7	8.6	6.6*
Waptus Lake +	21B49a	3024	Late Report			54.2	--
White Pass (E. Side)	21C28	4500	2/18	107	46.4	30.0	21.5*
			2/28	101	48.7	32.3	21.1*
White Pass (L. Lake)	21C27	4500	Not Measured			34.8	22.6*
			2/25	123	49.1	29.8	26.1*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	2/25	31	11.8	7.1	5.9*
Green Lake	21C10	6000	2/25	118	45.8	38.8	25.7
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	2/24	89	32.7	20.7	--

\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average
\# Not located directly on this drainage

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 7

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
MILL CREEK							
Homestead	17C1	4030	2/29	34	15.5	5.0	7.4*
Martin Springs	17C2	4400	2/29	56	23.2	10.4	12.5*
Tollgate	18D3M	5070	2/28	85	38.2	22.8	21.0
KLICKITAT RIVER							
Satus Pass	20D1	4030	2/28	35	15.8	14.1	8.0*
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	3/7	147	66.3	64.9	38.9*
Surprise Lakes	21C13A	4250	3/7	177	85.0	69.3	42.0
WIND RIVER							
Old Man Pass	21D19	3100	3/7	71	31.0	32.9	15.8*
LEWIS RIVER							
Blue Lake +	21C22a	4800	3/7	264	118.8	90.4	70.4*
Bob's Trail	21C21	2200	3/7	67	28.8	22.7	12.4*
Calamity Ridge +	22D1a	2500	3/7	38	17.5	16.4	--
Council Pass +	21C18a	4200	3/7	155	71.3	54.9	34.8*
Cultus Creek	21C12	4000	3/7	147	66.3	64.9	38.9*
Divide Meadow +	21C29a	5600	3/7	222	99.9	--	47.7*
Grand Meadow	21C25	3500	3/7	100	44.0	31.2	22.9*
Lone Pine Shelter	21C26	3800	3/7	131	60.4	61.1	31.4*
Marble Mountain +	22C5a	3200	3/7	105	52.5	57.4	28.5*
Mosquito Meadows	21C19	4100	3/7	136	62.0	62.9	34.4*
New Muddy River	22C6	1400	3/7	34	16.1	14.7	9.6*
Old Man Pass	21D19	3100	3/7	71	31.0	32.9	15.8*
Plains of Abraham +	22C1a	4400	3/7	180	86.4	78.8	55.7*
Smith Creek Road	22C4	2100	3/7	61	29.1	27.2	13.9*
Spencer Meadow +	21C20a	3400	3/7	81	37.3	--	20.5*
Surprise Lakes	21C13A	4250	3/7	177	85.0	69.3	42.0
Table Mountain +	21C24a	4200	3/7	153	70.4	59.7	40.6*
Timbered Peak +	21D18a	3000	3/7	48	22.1	23.0	16.4*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	3/4	280	112.2	102.7	71.6*
Mosquito Meadows	21C19	4100	3/7	136	62.0	62.9	34.4*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

verage based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 8

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
COWLITZ RIVER (Cont.)							
Ohanapecosh	21C32	2200	2/25	69	28.6	28.0	14.8*
Packwood Lake	21C31	2870	3/6	80	30.1	22.1	12.0*
Pigtail Peak	21C33	5900	2/17	230	96.8	68.3	53.9*
			2/25	224	94.3	69.7	52.7*
#Plains of Abraham +	22C1a	4400	3/7	180	86.4	78.8	55.7*
Potato Hill	21C14	4500	3/5	132	57.8	44.9	25.7
#White Pass (E. Side)	21C28	4500	2/18	107	46.4	30.0	21.5*
			2/28	101	48.7	32.3	21.1*
#White Pass (L. Lake)	32C27	4500	Not Measured		.	34.8	22.6*
			2/25	123	49.1	29.8	26.1*
Willame Creek	21C30	3250	3/5	122	50.0	42.4	27.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	3/1	187	79.5	56.0	38.8*
Longmire	21C3	2760	3/1	61	25.2	21.2	8.4*
New Paradise Park	21C35	5500	3/1	247	105.0	82.0	57.9*
Stem Glade	21C1	5050	3/1	244	105.9	85.3	59.4*
WHITE RIVER							
#Cayuse Pass	21C6	5300	3/4	280	112.2	102.7	71.6*
Corral Pass	21C13	6000	3/4	174	61.8	45.8	33.2*
#Morse Lake	21C17	5400	Not Measured			55.6	47.0*
GREEN RIVER							
Airstrip	21B24	1800	2/26	22	9.0	5.0	--
Charley Creek	21B25	1200	2/26	0	0.0	4.0	--
Cougar Mtn. S. P.	21B42SP	3200	2/25	79	35.2	27.0	--
Grass Mtn. No. 2	21B27	2900	2/26	86	36.1	34.7	18.1*
Grass Mtn. No. 3	21B28	2100	2/26	41	15.2	11.5	--
Lester Creek	21B29	3100	2/26	98	37.5	29.4	20.7*
Lynn Lake	21B50	4000	2/26	99	47.6	33.8	--
Sawmill Ridge	21B29	4700	2/26	141	59.5	49.0	36.5*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

verage based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 9

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
GREEN RIVER (Cont.)							
Snowshoe Butte SP	21B43SP	5000	Late Report			64.0	--
Stampede Pass	21B10	3000	2/15	173	53.0	35.2	34.8
			2/28	157	49.8	36.3	38.4
Twin Camp	21B30	4100	2/26	89	36.2	30.2	24.9*
CEDAR RIVER							
City Cabin	21B3	2390	2/25	75	30.2	23.9	14.8*
Mt. Gardner	21B21	3300	2/25	74	31.5	23.6	15.4*
Mt. Lindsay	21B16	2500	2/25	69	26.4	22.0	12.9*
Mt. Washington New	21B50	3000	2/29	47	21.0	--	--
Rex River	21B17	2400	2/25	74	29.1	2.8	12.1*
S. F. Cedar	21B6	3000	2/25	89	36.1	28.7	19.2*
Tinkham Creek	21B20	3400	2/25	96	38.1	31.3	20.6*
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	2/28	148	71.3	49.6	--
#Lake Elizabeth	21B19	2900	2/26	164	60.6	57.6	33.1*
Olallie Meadows	21B2	3625	3/7	176	79.1	61.6	40.4
S. F. Tolt	21B18	1900	2/28	17	6.8	2.5	--
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	2/26	164	60.6	57.6	33.1*
#Stevens Pass	21B1	4070	2/14	163	64.0	58.7	40.3
			2/28	171	77.3	62.1	44.4
#Stevens Pass S. Shed	21B45	3700	2/14	124	47.4	41.0	--
			2/28	126	55.0	43.3	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	Not Measured			23.4	14.0*
Beaver Pass	21A1	3680	3/7	128	48.8	37.1	29.3*
Brown Top Ridge +	21A28a	6000	3/7	241	93.6	64.0	--
#Cloudy Pass +	20A22a	6500	Marker buried			48.8	34.9*
Devils Park	20A4	5900	Not Measured			45.5	39.1
Freezeout Cr. Trail	20A1	3500	3/7	68	24.2	19.8	12.6
Freezeout Meadows New		5000	3/7	222	77.2	--	--
Granite Creek	21A29	3500	3/4	92	32.4	18.2	--
#Harts Pass	20A5A	6500	Late Report			49.6	38.5
Klesilkwa	Canada	3700	2/29	80	29.9	18.6	12.6**

* Adjusted 1953-67 average
\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 10

OW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
SKAGIT RIVER (Cont.)							
Lake Hozomeen	21A2	2600	3/7	46	15.5	17.5	9.0*
#Lyman Lake	20A23A	5900	Marker down			72.4	50.3*
Meadow Cabins	20A8	1900	3/4	53	17.1	10.4	7.2*
New Tashme	Canada	2500	2/29	70	22.6	15.1	11.0**
New Lake Hozomeen	21A30	2600	3/7	58	20.5	21.2	--
#Rainy Pass	20A9	4780	3/4	160	58.4	46.8	37.0
Thunder Basin	20A7	4200	3/4	98	33.6	24.2	20.5*
BAKER RIVER							
Baker Pass	21A27a	4900	Not Measured			--	--
Dock Butte +	21A11A	3800	3/4	221	99.4	100.8	65.3*
Easy Pass	21A7A	5200	3/4	255	114.7	86.4	82.1*
Jasper Pass	21A6A	5400	3/4	279	125.5	114.2	87.3*
Marten Lake	21A9A	3600	3/4	254	114.3	92.2	73.3*
Mount Blum +	21A18a	5800	3/4	180	81.0	68.6	62.8*
#Panorama New	21A26	4300	2/15	196	77.5	--	--
			3/1	211	95.3	78.7	--
Rocky Creek	21A12A	2100	3/4	118	53.1	57.1	23.3*
Schreibers Meadow	21A10A	3400	3/4	176	79.2	80.6	58.1*
S. F. Thunder Creek	21A14A	2200	3/4	94	42.3	22.1	4.5*
Watson Lakes	21A8A	4500	3/4	216	97.2	88.3	61.3*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	Marker buried			60.8	--
Canyon +	21A20a	5100	Marker buried			75.2	--
Glacier Creek	21A23	3700	3/2	100	36.9	--	--
Panorama New	21A26	4300	2/15	196	77.5	--	--
			3/1	211	95.3	78.7	--
Twin Lakes +	21A21a	5200	Marker buried			90.0	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	2/29	83	29.9	21.6	20.8
MORSE CREEK							
Cox Valley	23B14	4500	2/25	139	55.0	42.6	--

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

verage based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 11

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
ELWHA RIVER							
Hurricane	23B3	4500	2/25	83	29.7	23.0	21.8*
SKOKOMISH RIVER							
Black & White	23B7	4200	3/3	130	51.2	53.6	32.3*
Black & White Lakes	23B6	4700	3/3	179	73.4	68.2	49.4*
Four Streams	23B10	3000	3/3	92	38.9	44.1	--
Home Sweet Home	23B5	5200	3/3	225	99.7	82.4	64.2*
Sundown Pass	23B8	3900	Not Measured			75.2	45.4*

* Adjusted 1953-67 average

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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SPOKANE , WASHINGTON 99201

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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
APR. 1, 1972

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U. S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA SCS-PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

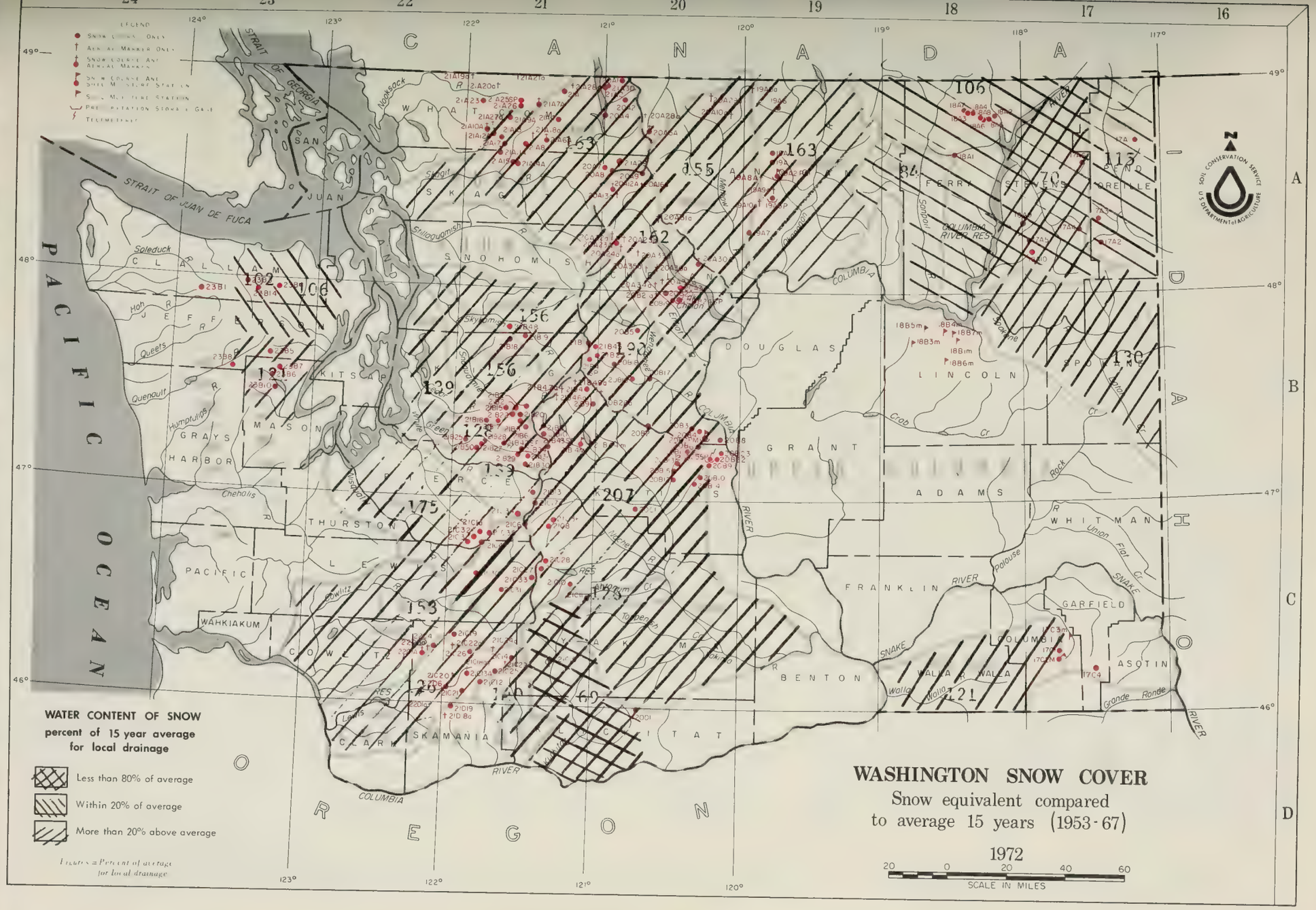
JOHN A. BIGGS

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201


WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1953-67)
1972
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
THURSTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
BENTON
FRANKLIN
GRANT
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GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
COLUMBIA RIVER
SNAKE RIVER
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

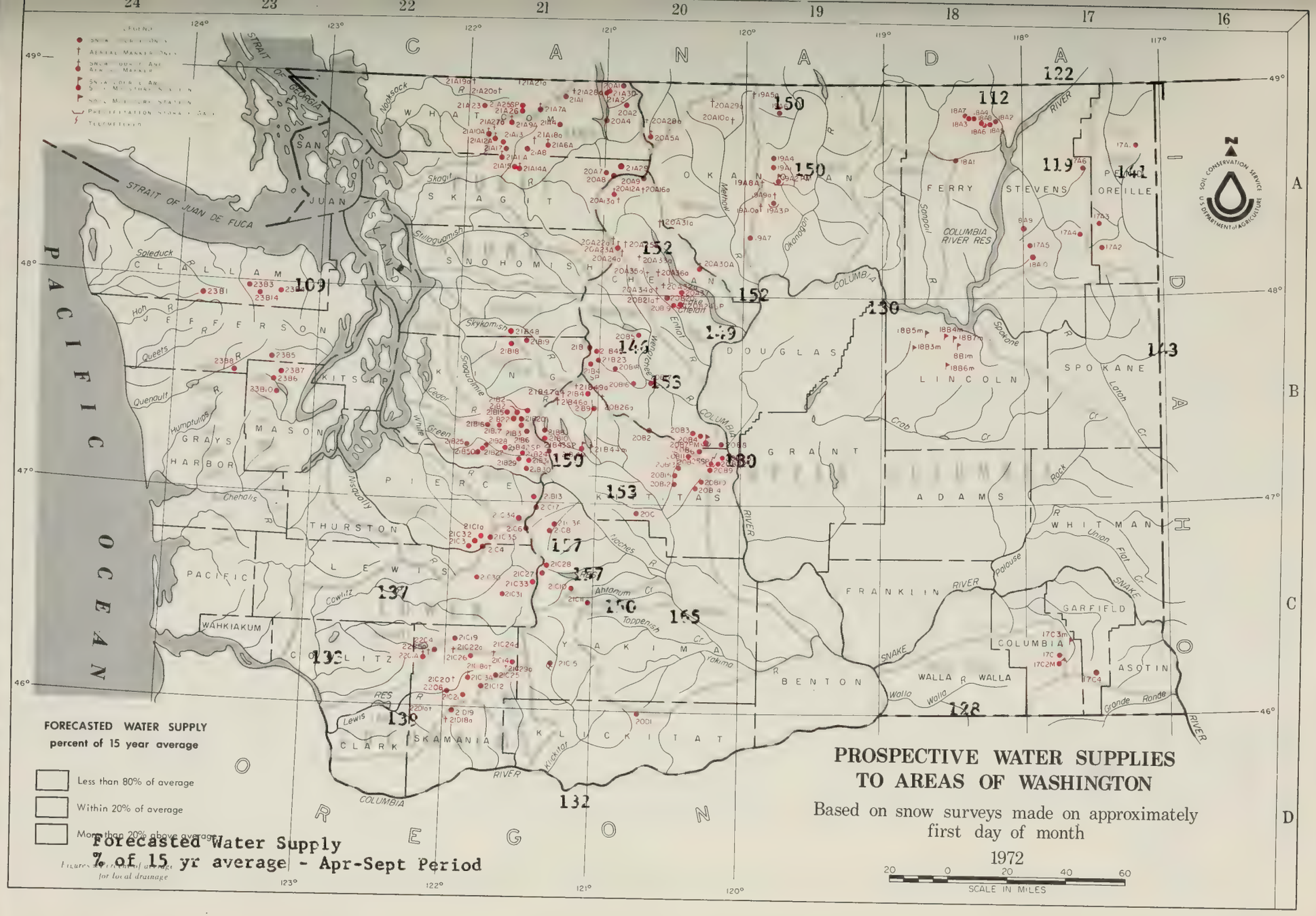
OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW


PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
1972
SCALE IN MILES
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Forecasted Water Supply
% of 15 yr average - Apr-Sept Period
CANADA
IDAHO
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
CLALLAM
JEFFERSON
KITSAP
KING
GRAYS HARBOR
MASON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT of AGRICULTURE

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
[illegible]	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C3S	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington
April 1, 1972

* *
* As was reported last month the water supply outlook for the State *
* of Washington and tributary streams continues to be excellent and *
* the record and/or near record forecasts made last month are fun- *
* damentally the same. There have been increases in some forecasts *
* where the larger portion of the water comes from high elevations *
* and there have been decreases in others where the watershed ele- *
* vation is lower. A great deal of the snowpack that occurred at *
* the lower elevations has run off and resulted in well above-normal *
* streamflows during the month of March. Along the main stem the *
* forecast should be increased due to the 6% increase forecasted *
* for the Columbia River at Birchbank. This, undoubtedly, will be *
* reflected along the stem and will result in higher flows than *
* previously anticipated at The Dalles. Temperatures were general- *
* ly warmer than normal over the basin which further consolidated *
* the heavy, dense snowpack. This, in connection with the general- *
* ly above-normal precipitation is the cause of both the increase *
* in forecasted amounts as well as the high flows. The snow cover *
* now ranges from a low of 30% below normal in the northeast to a *
* high of 107% above normal in the Yakima watershed. As we stated *
* last month, this low-elevation snowpack has a tendency to flash *
* off early causing local damage and as you can see this has occur- *
* red. If the weather patterns remain as they are now, with the *
* above-normal precipitation and temperatures, the high flows that *
* are now being experienced should continue but to a lesser degree *
* for the remainder of the runoff period. *
* *
* The winter precipitation was above normal over the entire state *
* with the exception of the northeastern portion. The spring pre- *
* cipitation, as stated above, continues this above-normal regime *
* with again the northeastern portion reporting below-normal rain- *
* fall. *
* *
* Reservoir storage again has little meaning as reservoir managers *
* are attempting to lower their reservoirs to contain the expected *
* high flows but with little affect. The flows downstream from *
* these reservoirs continue to be maintained at flood stage but the *
* uncontrolled flows from tributary basins do not permit as fast a *
* drawdown as the flood management agencies would like to see. Flows *
* during the month were all well above normal, ranging as high as *
* 450% of normal. *
* *

SNOW COVER

The Colville and Klickitat drainages again have the least amount of snow cover of any reported in the state. These watersheds are gaged

by low-elevation snow courses only. Other drainages in the northeast portion of the state have a snow cover that ranges from 16% below normal to 16% above. The snowpack in the Okanogan drainage, both the Canadian and United States portions, is 63% above normal. Along the east side of the Cascades the snowpack ranges from 50% above normal to the previously mentioned 107% above on the Yakima drainage. On the lower Columbia the higher elevation watersheds have a snow cover that ranges from 21% above normal to 53% above. The Puget Sound drainage snow cover ranges from 28% above to 75% above. On the Olympic Peninsula the snow cover is considerably less, ranging from 2% above on the Elwha to 21% above for the Skokomish.

RESERVOIRS

With the exception of Franklin D. Roosevelt reservoir all the rest have more water in storage than normal for this time of year. Again, as stated above, these reservoirs are filling faster than the flood control agencies would like to see but they cannot be lowered due to high flows occurring below the reservoirs.

PRECIPITATION

During the month of March the National Weather Service reported precipitation to be well above normal over the entire Columbia Basin with the exception of the northeastern part of Washington.

STREAMFLOW

All streams in the State of Washington are flowing at a much higher percentage than normal for this time of year. This is the result of the above mentioned above-normal precipitation and temperatures. The low-elevation snowpack is pretty well gone and the middle elevation going fast. This, together with the rain, is accounting for these high flows. The forecasted streamflows range from 9% above normal on the Olympic Peninsula to a high of nearly 70% above on the Yakima. Many of these forecasted flows are for record amounts. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - APRIL 1972

following summarized runoff forecasts are based principally on mountain snow and on the assumption that precipitation and temperature will be near average the present time to the end of the forecast period. Appreciable deviation normal of temperature and/or precipitation will correspondingly modify these asts. Streamflow figures for 1971 are preliminary and subject to revision.

, Stream on	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1971	1970	1969	15-Yr Average 1953-67
		COLUMBIA BASIN					
bia River System							
bia River Birchbank 1/	56410	122	Apr-Sep	48592	34553	48001	46368
	46500	124	Apr-Jul	39462	27931	40567	37480
	34100	126	Apr-Jun	29759	20952	32193	27040
bia River Grand Coulee 1/	90000	130	Apr-Sep	75360	54617	74617	69458
	78000	132	Apr-Jul	64444	46563	65587	58899
	61000	133	Apr-Jun	51550	37574	54513	45889
bia River Rock Island Dam 1/	99000	130	Apr-Sep	84965	58544	79675	76241
	84900	131	Apr-Jul	73096	50236	70515	64777
	66000	131	Apr-Jun	58245	40675	58851	50387
bia River The Dalles, OR 1/	139000	132	Apr-Sep	123427	88146	112281	105176
	120000	133	Apr-Jul	107702	76054	100113	90050
	97800	135	Apr-Jun	88936	62847	85657	72410
Oreille River System							
Oreille River Box Canyon	22600	141	Apr-Sep		14737	16166	16030
	21000	142	Apr-Jul		13676	15055	14788
	18200	143	Apr-Jun		11985	13033	12754
e River System							
e River Laurier	2150	112	Apr-Sep	2240	1099	2239	1918
	2080	114	Apr-Jul	2177	1068	2188	1821
	1910	116	Apr-Jun	1927	1004	2048	1644

served flow corrected for storage in any of the following reservoirs which are ove the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir d pumpage at F. D. Roosevelt Lake.

mflow Forecasts - April 1972 (Cont.)

, Stream on	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
e River System, (Cont.)							
lle River							
Kettle Falls	183	119	Apr-Sep		94	270	153
	169	120	Apr-Jul		86	256	141
	157	120	Apr-Jun		80	240	131
ne River System*							
ne River							
Post Falls ID 2/	4500	143	Apr-Sep			3552	3151
	4390	144	Apr-Jul			3463	3055
	4190	144	Apr-Jun			3350	2913
gan River System**							
kameen River							
Nighthawk	2290	150	Apr-Sep	1924	850	1199	1525
	2130	150	Apr-Jul	1827	808	1150	1419
	1820	152	Apr-Jun	1552	739	1052	1197
gan River							
Tonasket	2610	150	Apr-Sep	2236	923	1448	1738
	2370	150	Apr-Jul	2080	864	1353	1578
	1960	149	Apr-Jun	1769	785	1231	1318
v River System**							
v River							
Pateros	1600	152	Apr-Sep		622	1060	1054
	1500	153	Apr-Jul		587	1013	981
	1310	157	Apr-Jun		532	948	834
n River System							
n River							
Chelan 3/	1890	149	Apr-Sep	1550	905	1337	1266
	1680	150	Apr-Jul	1352	816	1230	1119
	1320	152	Apr-Jun	1019	683	1093	870
in River							
Stehekin	1380	152	Apr-Sep		678	961	904
	1180	153	Apr-Jul		589	853	772
	897	153	Apr-Jun		478	748	586
nr.							
nvoir	292	--	Apr-Sep		160	265	--
	271	--	Apr-Jul		148	249	--
	224	--	Apr-Jun		129	227	--

orecasts made by J. Alden Wilson, Soil Conservation Service, Boise, Idaho.
hese forecasts are based in part upon base flow data especially prepared
nd furnished for this purpose by the U. S. Geological Survey.
bserved flow corrected for storage in Coeur d'Alene Lake and diversions by
pokane Valley Farms Company and Rathdrum Prairie Canals.
bserved flow corrected for storage in Lake Chelan.

eamflow Forecasts - April 1972 (Cont.)

in, Stream l tion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
atchee River System							
atchee River t Plain	1940	146	Apr-Sep		1019	1443	1333
	1770	147	Apr-Jul		941	1349	1204
	1400	147	Apr-Jun		804	1217	952
atchee River t Peshastin	2780	153	Apr-Sep		1416	1953	1814
	2530	153	Apr-Jul		1318	1840	1651
	2030	154	Apr-Jun		1132	1669	1316
milt Basin r. Wenatchee	162*	--	May-Sep			145*	
ima River System							
ima River r. Martin 4/	218	150	Apr-Sep	195	131	156	145
	202	151	Apr-Jul	182	123	144	134
	176	152	Apr-Jun	142	114	136	116
ima River t Cle Elum 5/	1480	153	Apr-Sep		866	1051	968
	1360	154	Apr-Jul		803	977	885
	1190	156	Apr-Jun		723	912	762
ima River r. Parker 6/	2870	165	Apr-Sep		1491	1989	1738
	2840	165	Apr-Jul		1512	2005	1722
	2580	163	Apr-Jun		1461	1980	1583
ness River r. Easton 7/	201	157	Apr-Sep	173	115	139	128
	193	158	Apr-Jul	164	112	134	122
	169	158	Apr-Jun	131	104	128	107
Elum River r. Roslyn 8/	742	153	Apr-Sep	626	435	496	485
	685	154	Apr-Jul	567	402	473	445
	574	154	Apr-Jun	433	350	440	373
ing River r. Nile 9/	236	157	Apr-Sep	187	129	150	150
	218	158	Apr-Jul	168	122	142	138
	181	159	Apr-Jun	118	107	133	114

Thousands of Miners' inches.
Observed flow corrected for storage in Lake Keechelus.
Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.
Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
Observed flow corrected for storage in Lake Kachess.
Observed flow corrected for storage in Lake Cle Elum.
Observed flow corrected for storage in Bumping Lake.

amflow Forecasts - April 1972 (Cont.)

n, Stream ion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
na River System (Cont.)							
ican River							
. Nile	202	157	Apr-Sep		128	138	129
	188	157	Apr-Jul		120	130	120
	156	158	Apr-Jun		106	120	99
on River							
Tieton Dam 10/	394	157	Apr-Sep	323	244	273	251
	346	161	Apr-Jul	268	207	244	215
	281	163	Apr-Jun	197	172	220	172
es River							
Naches 11/	1440	160	Apr-Sep		841	994	899
	1330	162	Apr-Jul		779	926	819
	1140	163	Apr-Jun		694	857	698
um Creeks							
Tampico 12/	74	150	Apr-Sep		43	57	49
	68	152	Apr-Jul		39	53	45
	62	154	Apr-Jun		35	49	40
Columbia River System							
Creek							
Walla Walla	37	128	Apr-Sep		27	32	29
	32	128	Apr-Jul		23	29	25
	30	130	Apr-Jun		21	27	23
River							
Ariel 13/	1890	139	Apr-Sep		914	1613	1358
	1720	144	Apr-Jul		798	1431	1197
	1520	144	Apr-Jun		723	1303	1059
tz River							
Mayfield Dam	2960	137	Apr-Sep		1615	2230	2160
	2630	138	Apr-Jul		1425	2002	1908
	2180	135	Apr-Jun		1245	1802	1612
tz River							
Castle Rock 14/	3750	133	Apr-Sep		2134	2965	2818
	3370	136	Apr-Jul		1873	2641	2487
	2820	133	Apr-Jun		1652	2359	2119
OLYMPIC PENINSULA							
ness River System							
ness River	187	109	Apr-Sep		136	195	172
Sequim	155	110	Apr-Jul		115	167	141
	117	111	Apr-Jun		89	139	105

Observed flow corrected for storage in Rimrock Lake.
Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
Observed flow of North and South Forks (combined).
Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

following tabulation of Washington stream basins presents the water content he snow about April 1, 1972, as per cent of the same date in 1971 and 1970 average of record.

utary Basin	No. of Courses Average	Years of Record	1972 Snow Water Expressed as per cent of 1971	1970	1953-67
		UPPER COLUMBIA BASIN			
nd Oreille	14 - 17	8 - 35	94	125	115*
ttle	12	9 - 34	83	139	106*
lville	3	13	49	76	70*
okane	16	8 - 35	106	145	130*
npoil	1	33	81	95	84
anogan	32 - 35	7 - 37	112	180	163*
thow	8	11 - 30	110	160	155*
elan	4	11 - 40	114	218	162*
tiat	8 - 9	5 - 7	102	185	150*
natchee	8 - 10	11 - 40	107	192	190*
kima	22 - 23	6 - 52	102	202	207*
tanum	1 - 2	23	42	98	126*
		LOWER COLUMBIA			
ll Creek	3	7 - 22	102	171	121*
ickitat	1	15	42	84	69*
ite Salmon	2	28	90	182	140*
wis	14 - 18	11 - 28	70	267	126*
vlitz	10	9 - 32	96	504	153*
		PUGET SOUND			
squally	3 - 4	7 - 22	104	204	175*
ite	3	16 - 32	94	173	139*
een	5 - 10	11 - 26	88	206	128*
dar	5 - 6	10 - 11	89	339	139*
oqualmie	2 - 3	4 - 26	89	193	156*
vkomish	2 - 3	14 - 25	98	200	156*
agit	13 - 16	21 - 40	105	483	163*
ker	7 - 11	3 - 14	83	223	136*
		OLYMPIC PENINSULA			
okomish	3 - 4	8 - 22	73	201	121*
vha	1	22	75	199	102
ngeness	1	22	81	155	106*

Records of less than 15 years used on computation of averages

RESERVOIR STORAGE - 1000 Acre Feet

IN or EAM	RESERVOIR	USABLE 1/ CAPACITY	Measured April 1972	1971	1970	Normal*
		COLUMBIA				
kane	Coeur d'Alene Lake	225.1	335.2	137.9	133.8	164.0
mbia	Franklin D. Roosevelt Lake	5232.0	1242.4	1534.2	2111.5	2359.6
mbia	Banks Lake	761.8	680.2	674.8	698.9	499.3
ogan	Conconully Reservoir	13.0	10.8	6.1	8.0	6.7
ogan	Salmon Lake	10.5	8.6	2.1	7.4	8.5
an	Lake Chelan	676.1	199.5	179.9	22.0	169.0
		YAKIMA				
ma	Keechelus Lake	157.8	127.5	122.4	76.0	102.8
ess	Kachess Lake	239.0	215.3	190.7	181.5	184.4
Elum	Lake Cle Elum	436.9	326.9	251.8	199.5	278.8
ing	Bumping Lake	33.7	9.1	3.3	7.2	14.0
on	Rimrock Lake	198.0	145.1	139.6	110.1	135.8
		PUGET SOUND				
t	Ross Reservoir	1202.9	833.0	757.2	568.5	715.2
t	Diablo Reservoir	90.6	87.8	84.3	96.6	85.5
t	Gorge Reservoir	9.8	7.8	8.3	8.4	--

ased on Active Storage

5-year average 1953-67

SOIL MOISTURE - April

inage Basin tion	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Apr. 1 1972	1971	1970
B CREEK							
k Woods	18B3m	2750	48	13.6	9.6	10.1	10.4
use	18B4m	2420	48	13.6	9.2	9.3	9.6
ffels	18B5m	2380	48	13.6	9.7	9.1	8.2
rman	18B7m	2440	48	13.6	9.0	8.9	8.2
atridge	18B6m	2290	48	13.6	10.4	10.4	9.5
NOGAN							
non Meadows	19A2M	4500	48	5.4	3.7	3.6	2.4
it Creek	3-M	3600	48	7.3	Late Report	2.9*	--
IMA							
ery Flat	21B20m	2200	48	6.9	Not Measured	4.9	5.6
e Cle Elum	21B14M	2200	48	12.8	Not Measured	9.2	9.2
LA WALLA							
se	17C3m	3650	48	11.1	10.5	10.6	10.4
ners	17C2M	4400	48	12.0	10.6	11.0	11.2
ATCHEE							
er Wheeler	20B7M	4400	48	12.7	12.4	10.1*	6.9

March 1 measurement

FALL SOIL MOISTURE

nage Basin ion	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Oct. 1 1971	1970	1969
CREEK							
Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
se	18B4m	2420	48	13.6	5.0	4.4	5.9
fels	18B5m	2380	48	13.6	5.3	4.4	4.5
man	18B7m	2440	48	13.6	4.0	3.8	4.2
tridge	18B6m	2290	48	13.6	5.5	7.8	5.4
OGAN							
on Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
t Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
MA							
ry Flat	21B20m	2200	48	6.9	2.1	2.4	--
Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
A WALLA							
e	17C3m	3650	48	11.1	6.2	5.9	6.1
ers	17C2M	4400	48	12.0	8.2	7.3	7.1
TCHEE							
r Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

ov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

inage isions	FALL Sep - Oct 1971 2/ Observed	Departure	WINTER Nov - 1971 - Mar 1972 2/ Observed	Departure
umbia in Canada	4.45	+ 0.56	18.14	+ 5.45
d Oreille - Spokane	4.63	+ 0.48	22.16	+ 3.91
theastern Washington	3.16	+ 0.91	9.92	- 1.17
theastern Washington	3.73	+ 1.08	15.47	+ 3.06
tral Washington	4.15	- 0.29	39.29	+12.16
th Central Washington	1.99	+ 0.58	10.09	+ 3.75
thwest Slope Cascades	11.60	- 0.07	66.90	+14.76
thwest Slope Cascades	9.33	+ 1.61	54.96	+14.09

theastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
theastern Washington	- Touchet, Tucannon and Palouse drainages.
tral Washington	- Yakima, Wenatchee and Chelan drainages.
th Central Washington	- Methow and Okanogan drainages.
thwest Slope Cascades	- Puget Sound drainages.
thwest Slope Cascades	- Lower Columbia drainages.

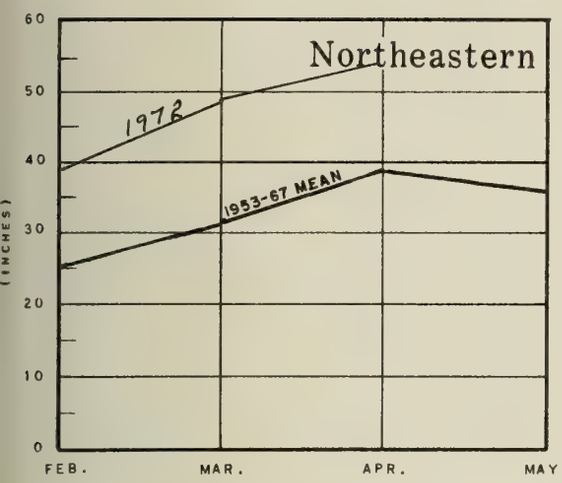
1/ Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service.

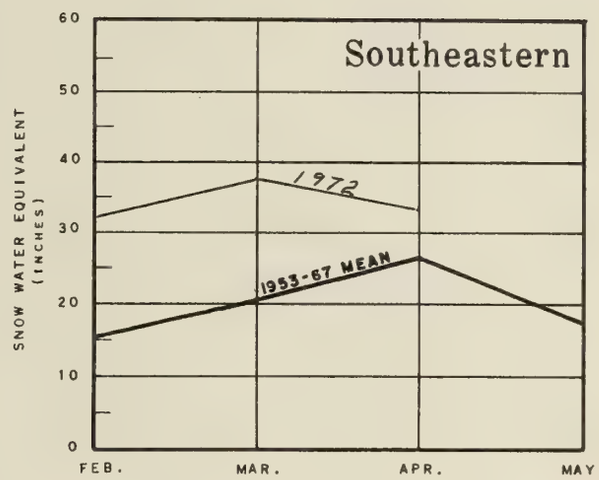
2/ Departure from 15-year (1953-67) drainage division average.

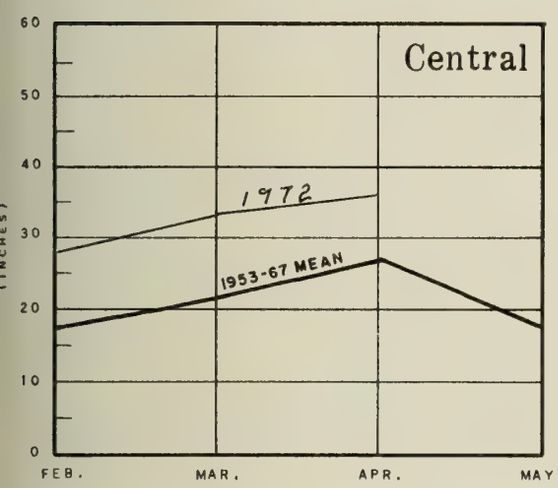
WASHINGTON SNOW COVER

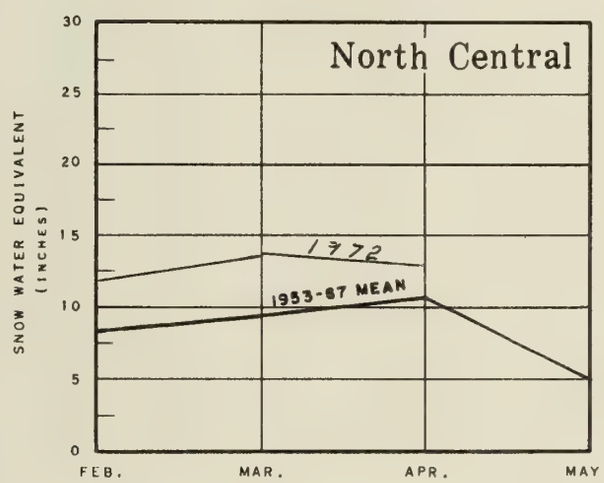
1972

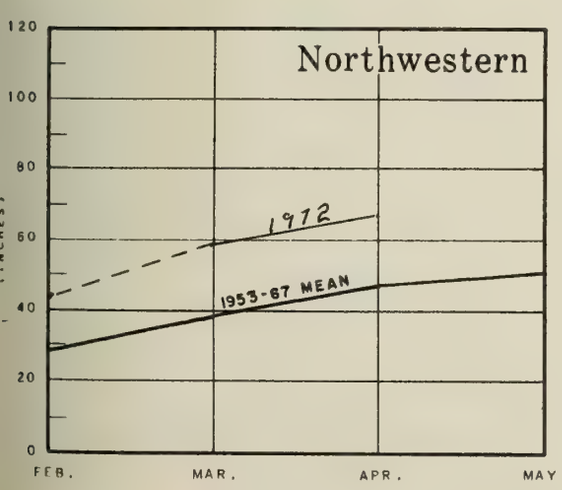
DRAINAGE AREAS

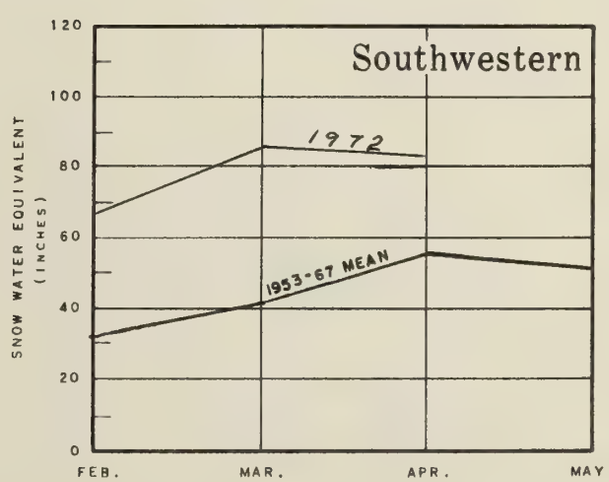










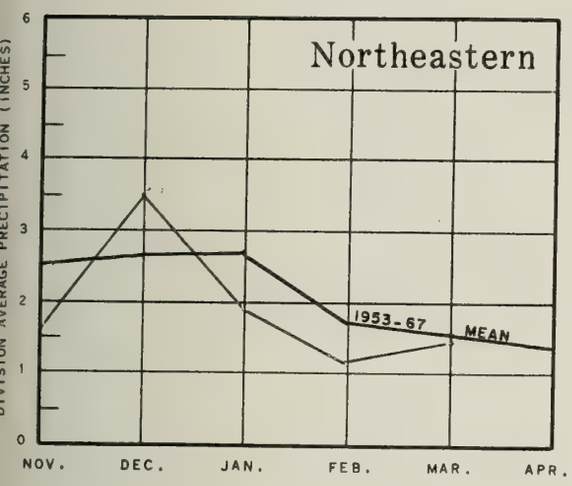


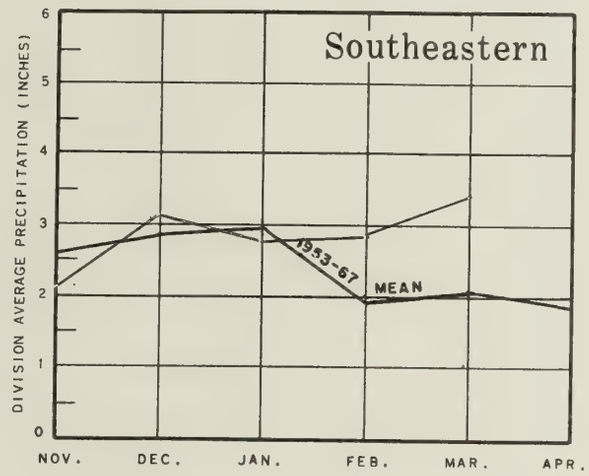
Selected Snow Survey Courses by Soil Conservation Service

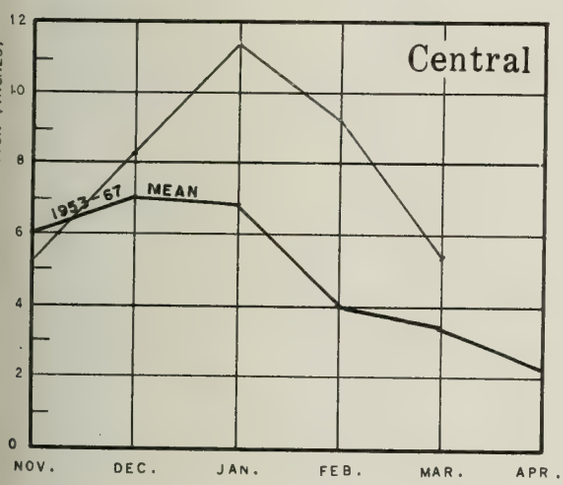
WASHINGTON VALLEY PRECIPITATION

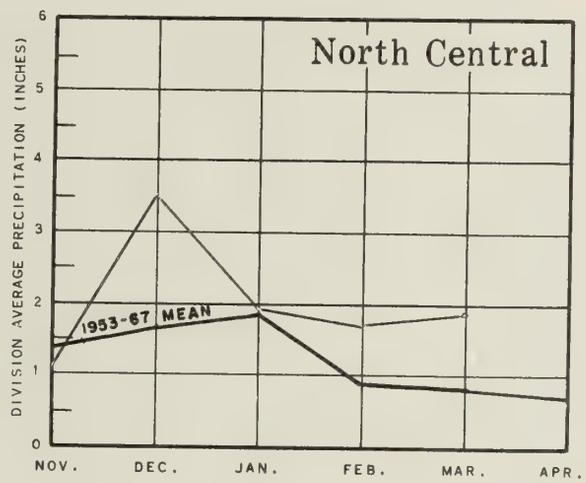
1971 - 1972

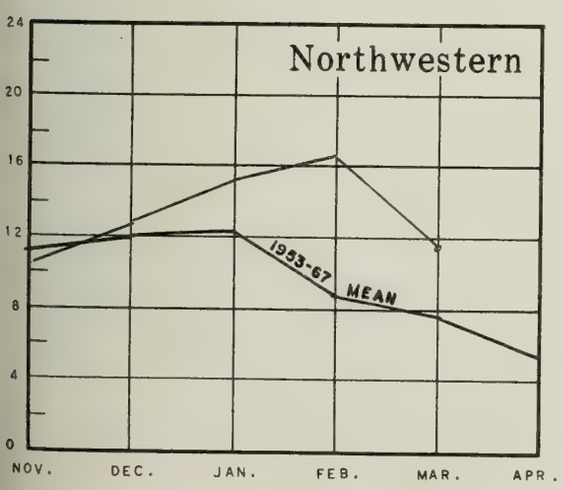
DRAINAGE AREAS

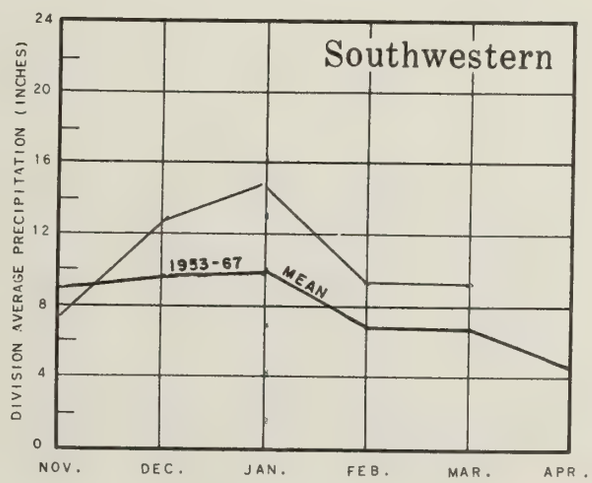












Preliminary Analysis by National Weather Service

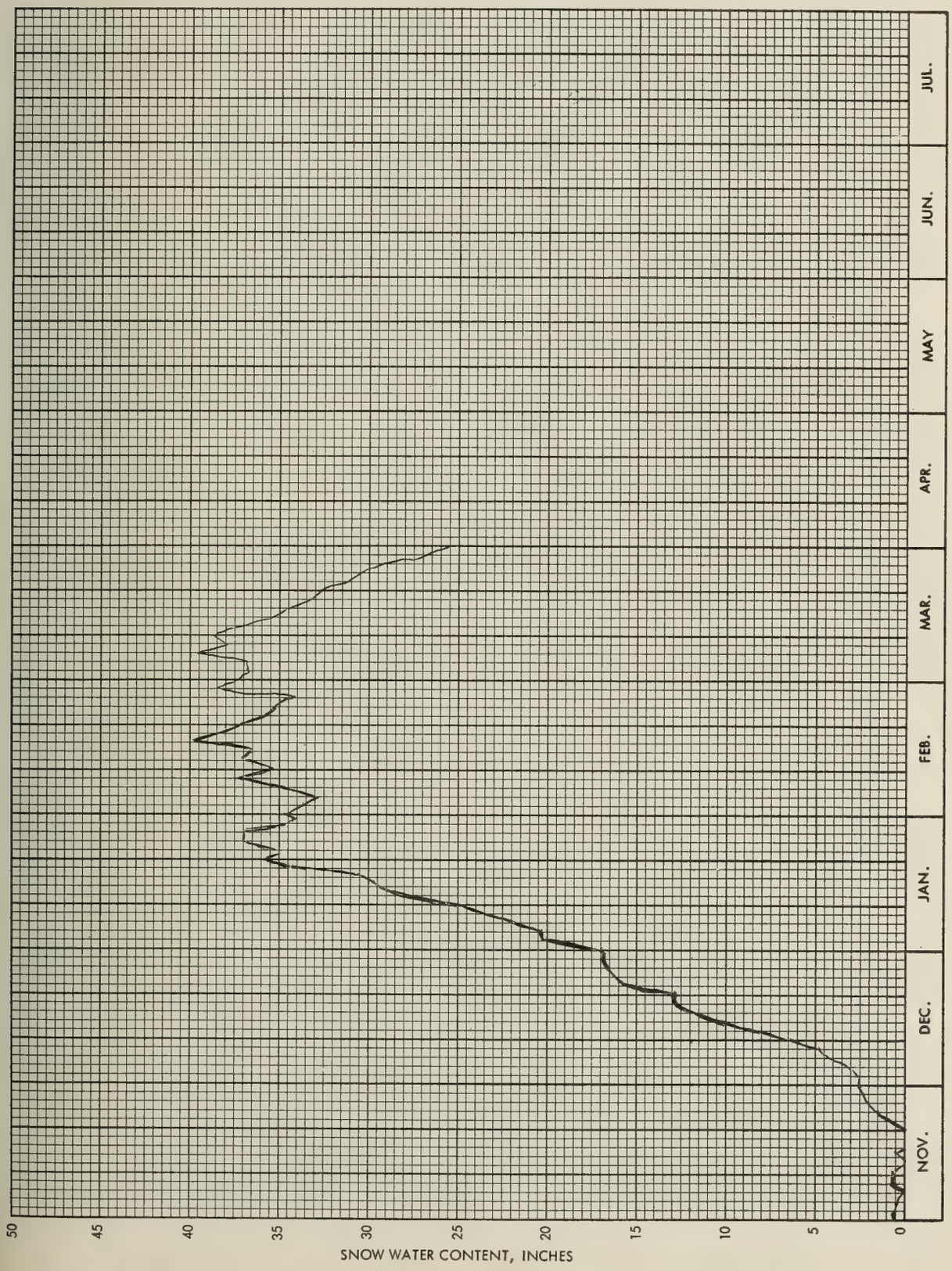
Cougar Mountain - FS

SNOW PILLOW DATA

AS OF April 1, 1972

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



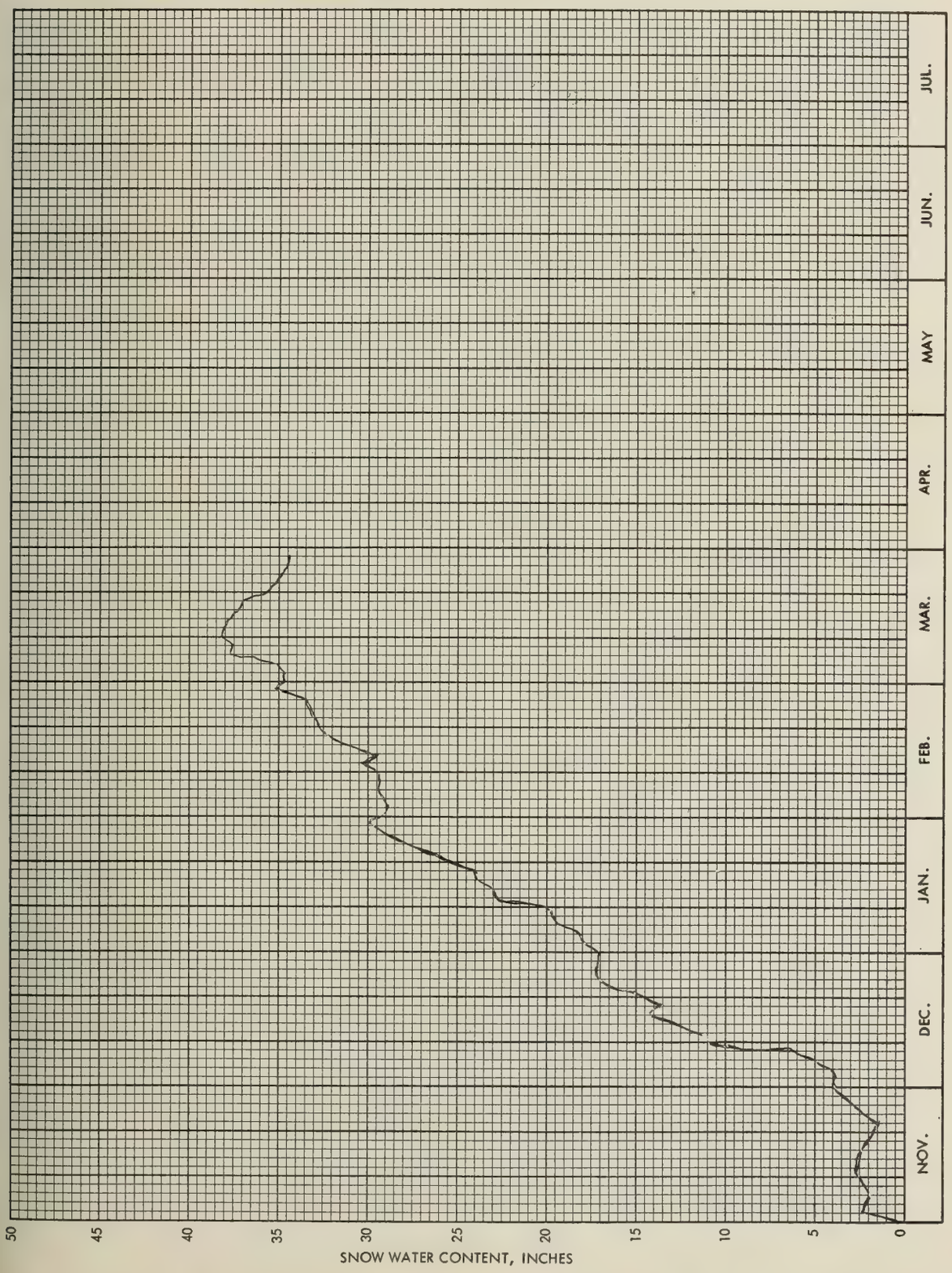
Berne-Mill Creek

SNOW PILLOW DATA

AS OF April 1, 1972

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee R.

Lat. 47° 45' Long. 121° 42' Elev. 3240'



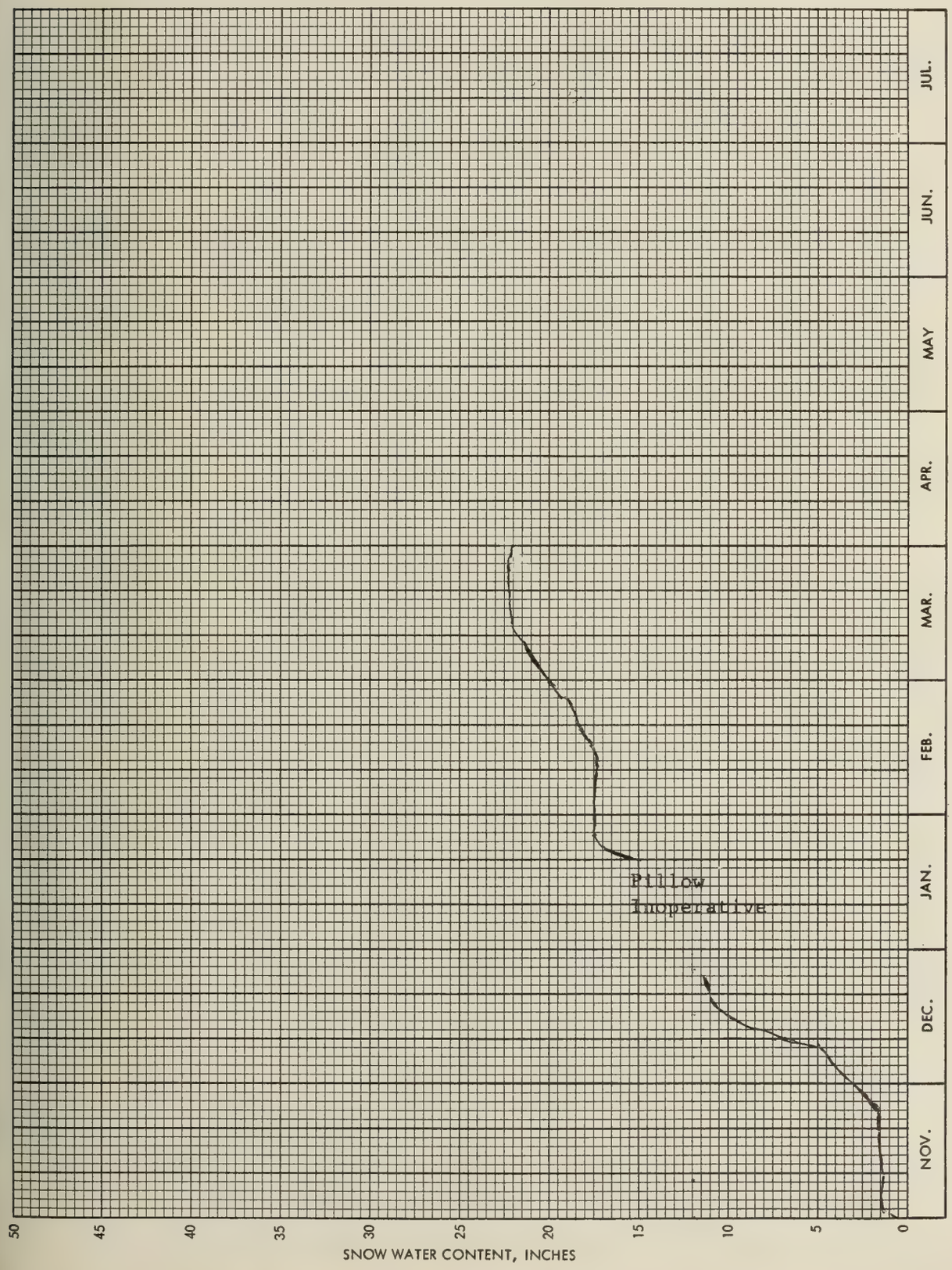
Trough No. 2

SNOW PILLOW DATA

AS OF April 1, 1972

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Wenatchee

Lat. 47° 14' Long. 120° 19' Elev. 5310'



APPENDIX 1

SNOW DATA MARCH 1 to APRIL 1, 1972

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	3/30	146	68.9	57.5	49.6
Baree Midway	15B16	4600	3/30	113	52.3	41.8	38.8
Baree Trail	15B15	3800	3/31	20	8.8	16.2	7.8
Benton Meadow	16A2	2344	3/29	0	0.0	6.5	3.2
Benton Spring	16A3	4900	4/3	41	18.2	22.2	20.8
Boyer Mountain	17A2	5250	3/29	62	26.0	36.0	27.9
Brush Creek	14A4	5000	3/28	41	14.5	13.2	13.1
Bunchgrass Meadow	17A1	5000	3/28	75	32.8	32.4	31.8
Chewelah	17A4	4925	4/1	34	13.1	19.4	19.2*
Heart Lake Trail	14C10	4800	3/28	87	39.4	33.2	23.0
Hoodo Basin	15C10	4800	3/28	176	80.8	67.8	54.5
Hoodo Creek	15C1	6200	3/28	175	78.3	64.2	50.6
Lookout	15B2	5250	3/30	119	54.5	49.8	38.4
Mosquito Ridge	16A4A	5100	3/27	105	45.6	46.6	40.2*
Nelson	Canada	3050	3/27	42	16.7	20.6	15.8**
Schweitzer Bowl	16A6	4500	3/30	69	31.8	38.8	--
Schweitzer Ridge	16A5	6100	3/30	118	51.8	55.5	--
Smith Creek	16A1	4800	4/3	119	56.7	64.6	50.1
Winchester Creek	17A3	2970	3/28	19	7.4	18.4	11.3*
KETTLE RIVER							
Barnes Creek	Canada	5500	3/29	71	25.5	23.1	212.**
Big White Mountain	Canada	5500	3/26	69	23.7	20.9	19.4**
Boulder Road	18A2	1450	3/29	0	0.0	7.8	1.8*
Butte Creek	18A3	4070	3/29	23	6.9	11.7	9.9*
Cabin Creek	18A8	3170	3/29	19	6.8	11.3	8.9*
Carmi	Canada	4100	3/26	26	9.0	8.6	6.1**
Farron	Canada	4000	3/27	36	13.2	19.0	13.4**
Goat Creek	18A4	3595	3/29	5	1.7	9.2	6.5*
Lower Trapping Cr.	Canada	3050	3/26	18	6.2	6.4	3.3**
Monashee Pass	Canada	4500	3/29	49	17.8	15.5	14.1**
Old Glory Mountain	Canada	7000	3/26	95	33.6	30.2	27.9**
Snow Caps Creek	18A5	2150	3/29	0	0.0	6.5	1.9*
Snow Caps Trail	18A6	2720	3/29	7	2.5	9.2	5.7*
Summit G. S.	18A7	4600	Not Measured			9.2	9.6*
Upper Trapping Cr.	Canada	5500	3/26	37	12.6	11.4	9.1**

/ Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 N7-0-22028-D

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
COLVILLE RIVER							
Baird	17A6	3215	4/1	0	0.0	8.0	6.4*
Carlson	18A9	2885	4/1	0	0.0	6.0	2.7*
Chewelah	17A4	4925	4/1	34	13.1	19.4	19.2*
Stranger Mountain	17A5	4990	4/1	18	6.8	22.3	14.3*
Togo	18A10	3370	4/1	23	10.4	20.8	11.2*
SPOKANE RIVER							
Above Burke	15B8	4100	3/27	85	35.6	34.0	25.0
Above Roland	15B7	4350	3/30	114	52.8	45.1	34.8*
Below Roland	15B6	3770	3/30	47	21.1	21.4	17.0*
Copper Ridge	16B2	4800	3/30	78	38.6	31.5	31.1
Forty-nine Meadows	15B3	5000	3/31	98	42.3	46.0	36.1
Fourth of July Summit	16B3	3100	3/16	24	9.4	11.2	--
			3/30	14	5.4	10.8	11.2*
Granite Peak	15B13A	6000	3/31	171	71.6	64.4	51.2*
Kellogg Peak	16B5A	5560	3/30	107	50.2	46.3	33.5*
#Lookout	15B2	5250	3/30	119	54.5	49.8	38.4
Lost Lake	15B14A	6000	3/31	224	98.6	--	66.2*
Lower Sands Creek	16B1	3400	3/30	68	27.9	24.6	21.0
Medicine Ridge	15B4A	6150	3/31	160	67.0	55.1	--
#Mosquito Ridge	16A4A	5110	3/27	105	45.6	46.6	40.2
Outlaw Creek	15B12A	3650	3/31	52	18.5	26.1	17.8*
Roland Summit	15B5A	5200	3/30	142	67.1	53.8	41.2*
Sherwin	16C1	3200	3/30	55	21.7	14.7	16.6*
Sunset	15B9A	5600	3/27	124	53.8	48.2	35.6*
SANPOIL RIVER							
Sherman Creek Pass	18A1	5350	3/29	38	12.7	15.6	15.2
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	3/28	26	6.8	7.0	6.1**
Blackwall Peak	Canada	6250	Late Report			47.5	34.4**
Bouleau Creek	Canada	5000	3/29	44	18.3	15.8	12.0**
Bouleau Lake	Canada	4500	3/26	60	18.3	18.0	--
Brookmere	Canada	3200	3/26	44	15.7	14.8	9.6**
Carrs Landing Lower	Canada	2250	3/30	0	0.0	1.6	0.0**
Carrs Landing Upper	Canada	3200	3/30	12	4.0	5.3	3.2**
Brenda Mine	Canada	4800	3/28	56	20.9	17.0	12.5**

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
OKANOGAN RIVER (Cont.)							
Clark	19A8a	7000	Late Report			29.9	23.1*
Enderby	Canada	6250	3/27	136	40.5	38.1	37.3**
Hamilton Hill	Canada	4900	3/29	76	33.5	19.3	14.8**
#Harts Pass	20A5A	6500	3/28	161	67.9	61.1	46.6
#Horseshoe Basin +	19A5a	7000	3/30	70	29.4	24.3	13.5*
Isintok Lake	Canada	5510	3/25	49	16.6	9.5	7.1**
Lost Horse Mountain	Canada	6300	3/27	61	21.0	12.4	8.0**
#Loup Loup	19A7	4650	3/29	31	12.0	13.3	8.7*
Lower Esperon Creek	Canada	4270	3/25	45	15.5	16.3	12.9**
McCulloch	Canada	4200	3/26	26	8.4	8.0	6.6**
Middle Esperon Creek	Canada	4580	3/25	55	19.2	21.8	15.5**
Missezula Mountain	Canada	5100	Late Report			14.0	8.3**
Mission Creek	Canada	6000	3/28	75	26.2	25.1	20.0**
Monashee Pass	Canada	4500	3/29	49	17.8	15.5	14.1**
Mount Kobau	Canada	5950	3/30	50	17.4	16.8	13.5**
Muckamuck +	19A9a	6390	Late Report			21.1	17.5*
Mutton Creek No. 1	19A1	5700	3/29	63	24.9	18.4	14.1
Mutton Creek No. 2	19A4	6000	3/30	62	23.0	20.6	15.1
New Copper Mountain	Canada	4300	3/25	30	11.8	10.6	4.9**
New Penticton Res.	Canada	6200	3/29	44	14.0	9.9	--
Nickel Plate Mtn.	Canada	6200	3/27	48	15.9	12.1	7.7**
Paysayten +	20A28a	4300	3/30	66	27.7	25.8	14.9*
Postill Lake	Canada	4500	3/29	31	11.2	11.6	8.8**
#Quartette Lake	Canada	4000	3/25	58	23.4	18.9	15.1
Rusty Creek	19A3	4000	3/30	20	8.1	8.8	7.0
Salmon Meadows	19A2	4500	3/30	36	12.4	14.2	10.6
Silver Star Mountain	Canada	6050	3/26	102	41.0	34.8	26.8**
Starvation Mountain +	19A10a	6750	Late Report			23.5	22.7*
Summerland Reservoir	Canada	4200	3/26	45	15.3	13.5	9.0
Touts Coulee	19A6	2845	3/30	5	1.9	4.4	0.7*
Trout Creek	Canada	4700	3/26	43	15.6	10.1	7.2**
Upper Esperon Creek	Canada	5290	3/25	65	22.0	26.5	20.3**
White Rocks Mountain	Canada	6000	3/29	81	33.6	34.1	22.2**
Vaseux Creek	Canada	4600	3/26	30	9.4	9.2	--
METHOW RIVER							
Billy Goat Pass +	21A10a	6409	Marker buried			53.2	34.4*
Dollar Watch +	20A29a	7000	3/30	114	47.9	36.5	27.6*
Harts Pass	20A5A	6500	3/28	161	67.9	61.1	46.6
Horseshoe Basin +	19A5a	7000	3/30	70	29.4	24.3	13.5*
Loup Loup	19A7	4650	3/29	31	12.0	13.3	8.7*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
METHOW RIVER (Cont.)							
#Mutton Creek No. 1	19A1	5700	3/29	63	24.9	18.4	14.1
#Mutton Creek No. 2	19A4	6000	3/30	62	23.0	20.6	15.1
#Rusty Creek	19A3	4000	3/30	20	8.1	8.8	7.0
#Salmon Meadows	19A2	4500	3/30	36	12.4	14.2	10.6
#War Creek Pass +	20A31a	6500	Marker buried			57.3	--
CHELAN LAKE BASIN							
Lyman Lake	20A23A	5900	3/22	223	106.3	82.4	58.5
Park Creek Ridge	20A12A	4600	3/28	153	65.4	66.8	46.5
Rainy Pass	20A9	4780	3/28	148	65.6	57.6	41.2
Safety Harbor	20A30A	6300	3/27	116	49.5	42.7	29.4*
War Creek Pass +	20A31a	6500	Marker buried			57.3	43.1*
ENTIAT RIVER							
Brief	20B19	1600	3/28	16	7.1	11.7	2.5*
Entiat Meadows +	20A33a	4800	4/1	147	67.6	64.9	50.6
Entiat River Trail +	20A34a	3150	4/1	58	27.8	38.0	22.7*
Four Mile Ridge +	20B27a		4/1	120	55.2	New Marker	
Fox Camp +	20A36a	6510	Marker buried		83.7	67.9	61.0*
Pope Ridge	20B20	4300	4/1	55	26.0	27.8	20.2*
Pugh Ridge +	20A32a	6400	4/1	131	60.3	48.5	40.6*
Shady Pass	20A37	5000	4/1	116	52.8	38.5	--
Snow Brushy +	20A35a	3850	4/1	111	51.0	58.6	43.9*
Tommy Creek +	20B21a	5300	4/1	84	38.6	34.3	28.2*
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	3/28	97	46.0	45.6	27.5*
Berne-Mill Creek New	21B41SP	3240	3/28	69	30.8	40.9	--
Blewett Pass No. 2	20B2	4270	3/29	69	34.3	24.8	16.1
Chiwaukum G. S.	20B16	1810	3/29	48	20.6	19.4	9.6*
#Fish Lake	21B4	3371	3/28	120	59.4	56.8	35.4
Lake Wenatchee	20B5	1970	3/28	61	24.1	24.0	11.1*
Leavenworth R. S.	20B17	1127	3/15	Not Measured.		6.2	--
			3/31	4	2.0	3.2	--
#Lyman Lake	20A23A	5900	3/22	223	106.3	82.4	58.5
Merritt	20B18	2140	3/28	67	27.6	24.6	14.2*

\# Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

1/ *Average based on 1953–67 average.*

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
WENATCHEE RIVER (Cont.)							
Stevens Pass	21B1	4070	3/15	175	85.1	67.9	49.7
			3/28	170	87.0	79.1	54.1
Stevens Pass S. Shed	21B45	3700	3/15	120	56.1	50.7	--
			3/28	117	56.0	57.2	--
SQUILCHUCK CREEK							
Beehive Springs	20B3	4400	3/31	19	9.9	9.8	7.7*
Scout-A-Vista	20B4	3400	3/31	22	10.5	11.3	6.4*
STEMILT CREEK							
Jump-Off	20B8	4450	3/29	25	12.6	11.2	7.3*
Stemilt Slide	20B6	5000	3/30	45	22.6	19.1	13.3*
Upper Wheeler	20B7	4400	3/30	24	13.1	13.6	8.3*
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	3/29	42	21.5	18.5	--
Colockum Creek Lower	20B23	4300	3/29	26	13.0	13.0	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	3/27	10	4.3	10.3	4.9*
Big Boulder Creek	21B9	3200	3/28	68	32.4	34.7	18.7
#Blewett Pass No. 2	20B2	4270	3/29	69	34.3	24.8	16.1
Bumping Lake	21C8	3450	3/15	56	22.6	29.0	16.9*
			3/31	49	20.5	29.5	16.8
Bumping Lake New	21C36	3400	3/15	70	28.9	31.5	19.9*
			3/31	63	26.6	34.0	17.2*
#Cayuse Pass	21C6	5300	3/27	272	128.2	135.3	91.2
Colockum Pass	20B9	5370	3/31	55	26.0	21.8	18.6*
Cooke Creek	20B10	4123	3/31	27	11.9	9.7	5.5*
#Corral Pass	21C13	6000	3/27	161	69.0	59.8	41.7*
Fish Lake	21B4	3371	3/28	120	59.4	56.8	35.4
Green Lake	21C10	6000	3/27	124	54.5	--	33.2*
Grouse Camp	20B11	5385	3/30	62	30.3	20.4	18.2*
High Creek	20B12	2930	3/30	25	11.2	10.8	0.9*
Lake Cle Elum	21B14M	2200	3/14	56	24.4	7.8	11.0*
			3/31	39	16.5	8.8	5.7
Lemah Creek +	21B47a	3327	3/28	123	59.0	--	--
Manashtash	20C1	3935	3/29	0	0.0	6.5	1.8*

\# Not located directly on this drainage
* Adjusted 1953-67 average

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
YAKIMA RIVER (Cont.)							
Morse Lake	21C17	5400	3/29	184	69.4	94.4	62.0*
Nanum	21B39	2340	3/30	32	14.6	14.5	8.0*
#Olallie Meadows	21B2	3625	3/29	158	81.7	81.0	51.3
#Satus Pass	20D1	4030	3/30	17	8.3	19.9	--
#Stampede Pass	21B10	3000	3/16	153	46.2	65.1	45.2
			3/30	149	46.7	67.5	48.8
Trail Creek	20B14	3360	3/31	0	0.0	0.0	--
Tunnel Avenue	21B8	2450	3/14	88	38.6	35.2	25.2*
			3/31	80	36.0	38.2	25.9
Van Epps Pass +	20B26a	5925	3/28	220	105.6	--	--
Walters Flat	20B15	3360	3/30	23	11.0	11.1	4.9*
Waptus Lake +	21B49a	3024	3/28	135	64.8	--	--
White Pass (E. Side)	21C28	4500	3/16	104	51.6	37.7	24.4*
			3/30	102	48.3	41.7	26.6*
White Pass (L. Lake)	21C27	4500	Not Measured			43.6	31.4*
			3/27	117	52.4	42.4	32.6*
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	3/27	10	4.3	10.3	4.9*
#Green Lake	21C10	6000	3/27	124	54.5	--	33.2*
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C4	5700	3/29	79	35.8	22.7	--
MILL CREEK							
Homestead	17C1	4030	3/28	17	7.8	9.9	7.9*
Martin Springs	17C2	4400	3/28	43	19.5	16.6	14.5*
Tollgate	18D3M	5070	3/30	74	33.6	30.7	25.9
KLICKITAT RIVER							
Satus Pass	20D1	4030	3/30	17	8.3	19.9	12.1*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	3/28	137	66.3	79.3	49.7
#Surprise Lakes	21C13A	4250	3/28	160	80.7	84.2	54.8
WIND RIVER							
Old Man Pass	21D19	3100	3/28	58	25.2	44.4	20.7*
LEWIS RIVER							
Blue Lake +	21C22a	4800	3/28	260	130.0	130.0	84.2*
Bob's Trail	21C21	2200	3/29	50	22.1	33.0	13.8*
Calamity Ridge +	22D1a	2500	3/28	12	5.4	20.6	--
Council Pass +	21C18a	4200	3/28	131	64.2	71.3	42.6*
#Cultus Creek	21C12	4000	3/28	137	66.3	79.3	49.7
Divide Meadow +	21C29a	5600	3/28	204	102.0	89.8	60.0*
Grand Meadow	21C25	3500	3/28	83	38.2	46.0	29.0*
Lone Pine Shelter	21C26	3800	3/28	122	56.3	77.7	43.2*
Marble Mountain +	22C5a	3200	3/28	87	45.2	73.6	40.2*
#Mosquito Meadows	21C19	4100	3/28	128	58.6	80.3	47.4*
New Muddy River	22C6	1400	3/29	12	5.7	20.7	10.8*
Old Man Pass	21D19	3100	3/28	58	25.2	44.4	20.7*
Plains of Abraham +	22C1a	4400	3/28	180	90.0	108.9	70.2*
Smith Creek Road	22C4	2100	3/29	45	21.9	41.9	17.2*
Spencer Meadow +	21C20a	3400	3/29	62	29.8	51.0	25.6*
Surprise Lakes	21C13A	4250	3/28	160	80.7	84.2	54.8
Table Mountain +	21C24a	4200	3/28	136	66.6	81.0	49.2*
Timbered Peak +	21D18a	3000	3/28	24	10.8	36.6	23.7*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	3/27	272	128.2	135.3	91.2
Mosquito Meadows	21C19	4100	3/28	128	58.6	80.3	47.4
Ohanapecosh	21C32	2200	3/27	62	27.9	36.0	16.4
Packwood Lake	21C31	2870	3/27	64	27.9	29.1	13.5*
Pigtail Peak	21C33	5900	3/16	222	110.3	93.0	63.3*
			3/27	229	104.3	88.0	72.9*
#Plains of Abraham +	22C1a	4400	3/28	180	90.0	108.9	70.2
Potato Hill	21C14	4500	3/28	110	50.1	55.1	33.0*
#White Pass (E. Side)	21C28	4500	3/16	104	51.6	37.7	24.4*
			3/30	102	48.3	41.7	26.6*
#White Pass (L. Lake)	21C27	4500	3/27	117	52.4	42.5	32.6*
Willame Creek	21C30	3250	3/27	103	45.0	54.6	35.0*

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 8

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average 1/
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	3/28	176	84.5	73.0	50.1
Longmire	21C3	2760	3/28	51	21.8	29.7	10.6
New Paradise Park	21C35	5500	3/28	255	124.6	106.6	73.9*
Stem Glade	21C1	5050	3/28	249	116.1	104.7	74.4
WHITE RIVER							
#Cayuse Pass	21C6	5300	3/27	272	128.2	135.3	91.2
Corral Pass	21C13	6000	3/27	161	69.0	59.8	41.7*
#Morse Lake	21C17	5400	3/29	184	69.4	94.4	62.0*
White River Campgr.	21C34	4000	3/22	68	32.6	--	--
GREEN RIVER							
Airstrip	21B24	1800	3/27	6	2.5	3.6	--
Charley Creek	21B25	1200	3/27	0	0.0	0.0	--
Cougar Mountain SP	21B42SP	3200	3/30	50	25.6	37.0	--
Grass Mtn. No. 2	21B27	2900	3/27	77	35.4	45.2	26.1*
Grass Mtn. No. 3	21B28	2100	3/27	20	8.1	13.5	--
Lester Creek	21B29	3100	3/27	93	41.1	40.0	28.7*
Lynn Lake	21B50	4000	3/27	79	41.2	44.7	--
Sawmill Ridge	21B29	4700	3/27	140	66.6	60.8	46.0*
Snowshoe Butte SP	21B43SP	5000	3/29	200	96.2	77.0	--
Stampede Pass	21B10	3000	3/16	153	46.2	65.1	45.2
			3/30	149	46.7	67.5	48.8
Twin Camp	21B30	4100	3/27	78	37.2	37.2	31.0*
CEDAR RIVER							
City Cabin	21B3	2390	3/28	58	26.2	36.9	18.3*
Mt. Gardner	21B21	3300	3/29	42	22.0	40.9	19.8*
Mt. Lindsay	21B16	2500	3/28	52	24.1	36.6	17.7*
Mt. Washington New	21B50	3000	Not Measured				
Rex River	21B17	2400	3/29	60	28.5	15.7	19.8*
S. F. Cedar	21B6	3000	3/28	79	35.5	41.0	24.8
Tinkham Creek	21B20	3400	3/28	82	36.9	46.7	23.2*

Not located directly on this drainage
* Adjusted 1953-67 average

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 9

IOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	3/27	156	62.4	78.1	--
#Lake Elizabeth	21B19	2900	3/27	147	71.2	82.5	46.9*
Olallie Meadows	21B2	3625	3/29	158	81.7	81.0	51.3
S. F. Tolt	21B18	1900	3/27	0	0.0	3.7	--
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	3/27	147	71.2	82.5	46.9*
#Stevens Pass	21B1	4070	3/15	175	85.1	67.9	49.7
			3/28	170	87.0	79.1	54.1
#Stevens Pass S. Shed	21B45	3700	3/15	120	56.1	50.7	--
			3/28	117	56.0	57.2	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	3/28	45	19.9	31.1	13.6
Beaver Pass	21A1	3680	3/28	111	49.7	50.6	35.6
Brown Top	21A28a	6000	3/28	213	97.2	84.6	--
Devils Park	20A4	5900	3/27	163	69.9	57.2	46.0
Freezeout Cr. Trail	20A1	3500	3/28	53	21.3	23.8	13.4
Granite Creek	21A29	3500	3/27	78	31.4	29.4	--
#Harts Pass	20A5A	6500	3/28	161	67.9	61.1	46.6
Klesilkwa	Canada	3700	3/29	69	31.1	25.4	15.0**
Lake Hozomeen	21A2	2600	3/28	35	13.4	20.4	10.4
#Lyman Lake +	20A23A	5900	3/22	223	106.3	82.4	58.5
Meadow Cabins	20A8	1900	3/27	37	14.4	11.4	7.5
New Lake Hozomeen	21A30	2600	3/28	43	17.5	25.8	--
New Tashme	Canada	2500	3/29	55	23.1	19.4	10.7**
Quartette Lake	Canada	4000	3/25	58	23.4	18.9	15.1**
#Rainy Pass	20A9	4780	3/27	148	65.6	57.6	41.2
Thunder Basin	20A7	4200	3/27	87	35.8	32.0	25.8
BAKER RIVER							
Dock Butte	21A11A	3800	3/30	212	100.0	100.8	81.0*
Easy Pass	21A7A	5200	3/29	249	119.4	117.7	96.7*
Jasper Pass	21A6A	5400	3/29	251	112.3	126.0	103.6*
Komo Kulshan	21A17	800	3/29	38	15.8	16.8	--
Marten Lake	21A9A	3600	3/29	218	110.8	108.8	88.2*
Mount Blum +	21A18a	5800	3/29	180		--	--

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 10

NOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average 1/
BAKER RIVER (Cont.)							
#Panorama New	21A26	4300	3/15	197	98.3	87.2	--
			3/31	187	99.5	96.6	--
Rocky Creek	21A12A	2100	3/30	95	39.4	57.9	30.5*
Schreibers Meadow	21A10A	3400	3/29	168	84.5	94.2	73.3*
S. F. Thunder Creek	21A14A	2200	3/30	20	9.1	17.6	5.3*
Sulphur Creek	21A13	1600	3/30	55	22.7	32.6	13.7*
Three Mile Creek	21A8A	4500	3/30	6	2.4	6.3	--
Watson Lakes	21A8A	4500	3/29	214	103.5	103.2	78.2*
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	3/30	181	92.3	70.8	--
Canyon +	21A20a	5100	Marker buried			86.0	--
Glacier Creek	21A23	3700	3/30	77	36.9	40.5	--
Panorama New	21A26	4300	3/15	197	98.3	87.2	--
			3/31	187	99.5	96.6	--
Twin Lakes +	21A21a	5200	Marker buried			94.0	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	3/27	67	28.1	34.9	26.4*
MORSE CREEK							
Cox Valley	23B14	4500	3/31	107	45.3	67.2	--
ELWHA RIVER							
Hurricane	23B3	4500	3/31	70	29.9	39.8	29.3
SKOKOMISH RIVER							
Black & White	23B7	4200	3/28	116	52.2	73.0	47.9
Black & White Lakes	23B6	4700	3/28	166	84.4	98.8	67.3
Four Streams	23B10	3000	3/28	69	31.4	67.8	--
Home Sweet Home	23B5	5200	3/28	226	104.7	119.3	81.9
Sundown Pass	23B8	3900	Not Measured			104.0	66.5*

Not located directly on this drainage
* Adjusted 1953-67 average
\+ Snow water equivalent estimated from aerial stadia observation

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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AT URBANA-CHAMPAIGN

WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAY 1, 1972

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

U.S. DEPARTMENT of AGRICULTURE
CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY
SOIL CONSERVATION SERVICE

USDA SCS-PORTLAND OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

ORLO W. KRAUTER
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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

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STATE OF WASHINGTON

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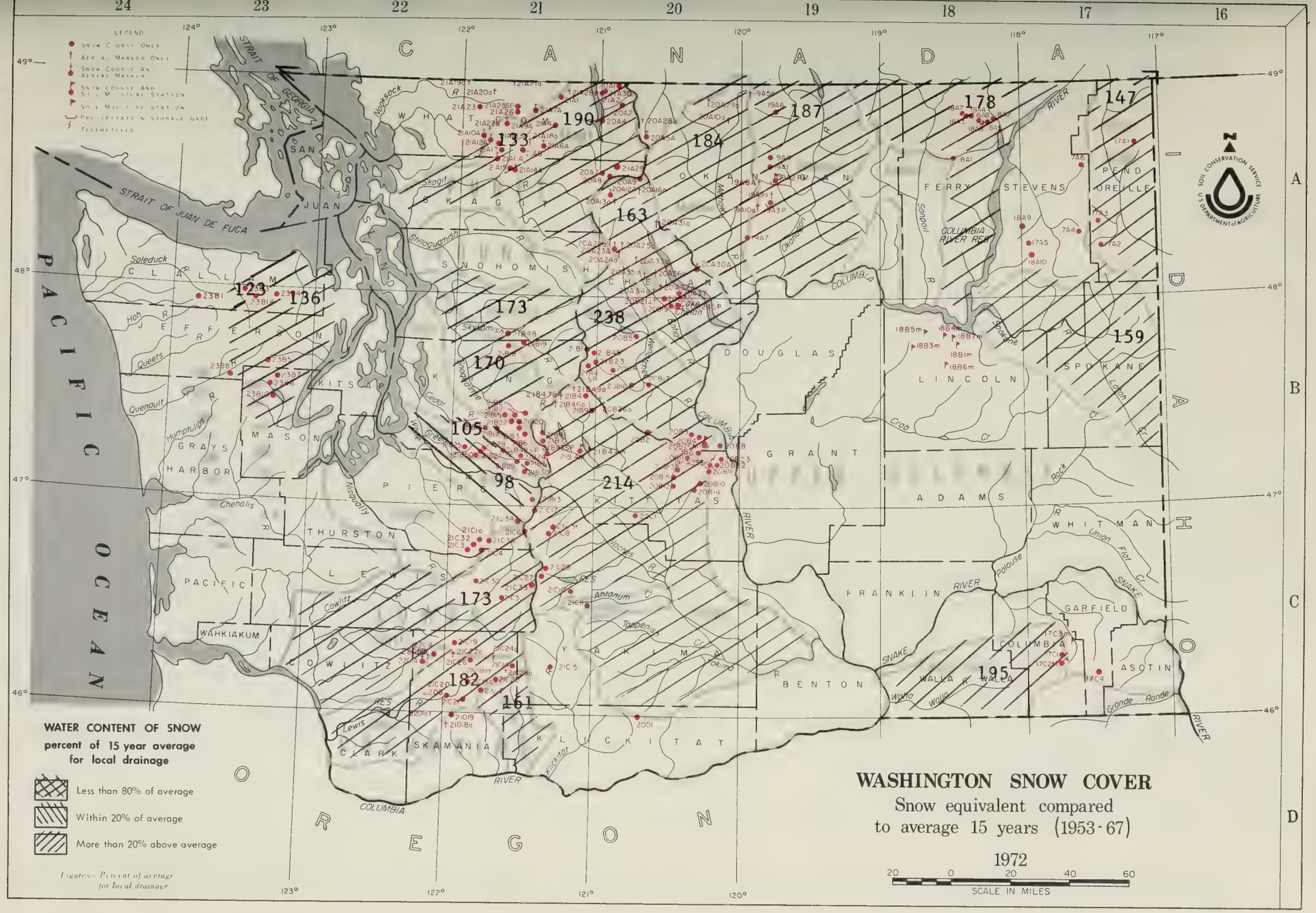
WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1953-67)
1972
SCALE IN MILES
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures—Percent of average for local drainage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
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CLALLAM
JEFFERSON
KITSAP
KING
MASON
GRAYS HARBOR
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
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PACIFIC
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ASOTIN
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310

Colockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	40E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	29	28N	6W	

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

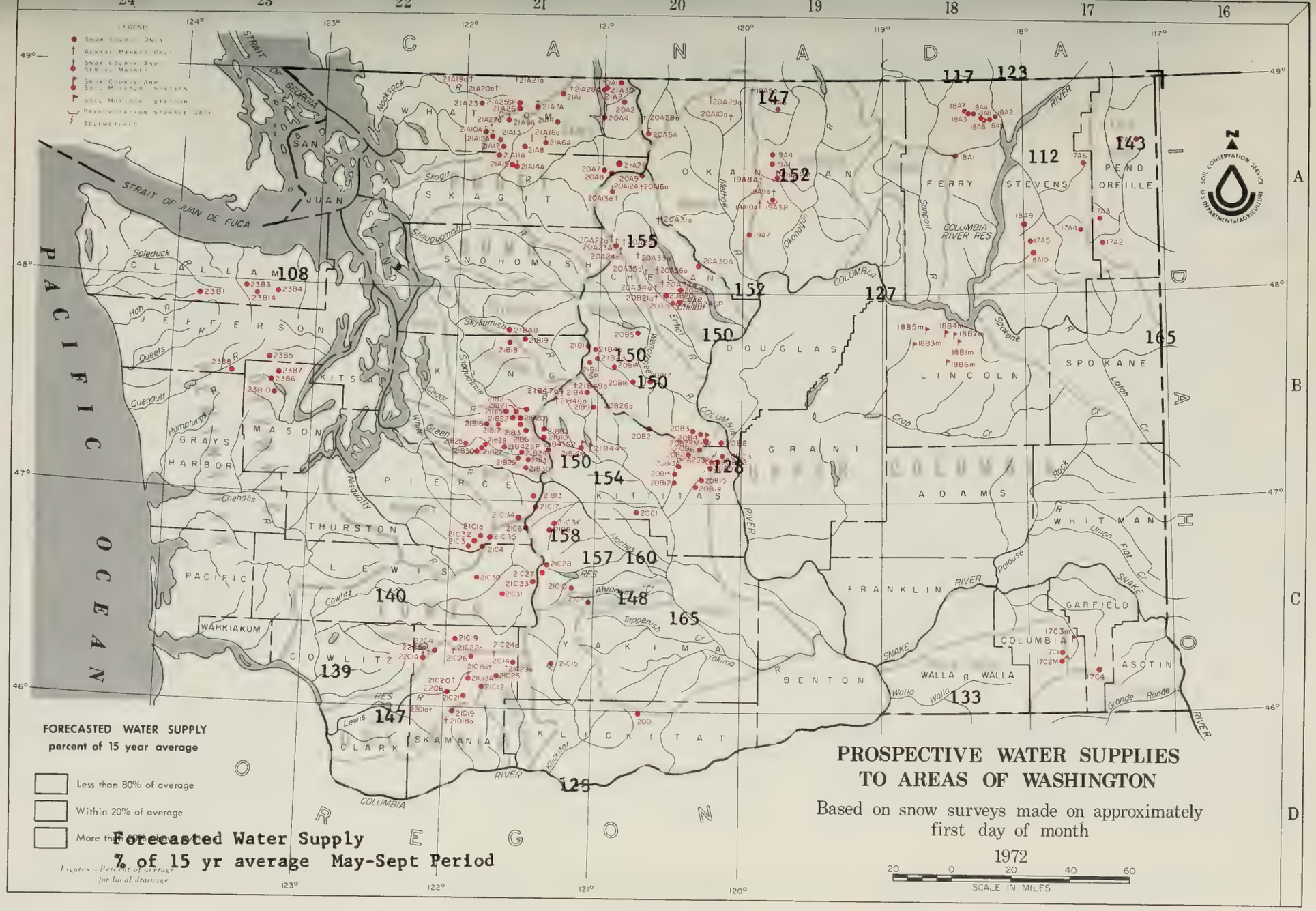
Soleduck River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow


PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
1972
SCALE IN MILES
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
Forecasted Water Supply
% of 15 yr average May-Sept Period
Figures = Percent of average for local drainage
CANADA
IDAHO
OREGON
PACIFIC OCEAN
STRAIT OF GEORGIA
STRAIT OF JUAN DE FUCA
SAN JUAN
WHATCOM
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
CLALLAM
JEFFERSON
KITSAP
KING
MASON
GRAYS HARBOR
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
ASOTIN
BENTON
WALLA WALLA
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER RES
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT of AGRICULTURE

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington
May 1, 1972

* *
* The water supply outlook for the State of Washington and tribu- *
* tary basins continues to improve even greater than was reported *
* last month. The snowpack at the higher elevations has built to *
* near-record amounts and snowpacks at the middle elevations *
* which normally have started to melt out have increased or re- *
* mained constant from the April 1 measurements. Low-elevation *
* snow courses generally are bare or mostly void of snow but even *
* a few of these have well-above normal snowpacks. Last month we *
* reported record outflows. Things have stabilized during April *
* so that streamflow is very near normal. The above-normal flows *
* that did occur were generally the result of a continued reser- *
* voir evacuation. Precipitation continued above normal with one *
* exception and that being the central Washington area and in *
* this area there were exceptions with some stations reporting *
* 200% above normal rainfall. The overall result of above-normal *
* precipitation, cold temperatures, poor streamflow, is a gener- *
* al increase of all water supply forecasts, percentagewise, in *
* the state and from general tributary basins to the state. *
* *

SNOWCOVER

There is only one basin in the State of Washington that is reporting a below-normal snowpack and this only 2% below. Generally the snowpack ranges up to 138% greater than normal which occurred on the Wenatchee watershed. Last month's record breaker, the Yakima, is running a close second. The peculiar thing about the snowpack this year is the lack of depletion in the mid-elevation area and where we normally have a decrease from April to May in the higher locations, this year with the result of the cold temperatures and above-normal precipitation many of these snow courses have increased in actual water equivalent. Even at the lower elevations where it always melts off the rate of depletion is zero or much below expected. As can be seen from the preceding map the only areas in the State of Washington with less than 120% of normal snowpack are the White and Green River watersheds.

RESERVOIRS

The reservoir story in an anticipated high-flow year has little meaning. Where normally the irrigation and power interests are attempting to fill the reservoirs to maintain high-head or full-volume, this year with the heavy flood control program that is being carried on by the Corps of Engineers all reservoirs of any consequence have been lowered to handle the anticipated above-normal flows. Reservoirs like Franklin D. Roosevelt are only 10% full at

this time. Certain small reservoirs that have no value for flood, such as those on the Okanogan Irrigation District land, are nearly full and even these have been evacuated in part in anticipation of large inflows. The slow-down in runoff during the month of April has assisted the reservoir operators in lowering their storage to an acceptable level for flood control purposes, i.e., the five Yakima reservoirs have reached their designed low elevation and excessive releases have been halted. There are no flood control areas in these reservoirs and they are being operated voluntarily by the irrigation interests for flood control purposes in the lower Yakima valley.

PRECIPITATION

Only the central Washington area, as reported by the National Weather Service, had below-normal precipitation. The range of rainfall, percentagewise, extends from 9% below normal to 57% above on the southwest slopes of the Cascades. The large area on the west side was generally 48% greater than normal and along the east slope 14% above normal. Along the east side of the state rainfall was 7% above normal and 19% above for the Columbia Basin in Canada.

STREAMFLOW

All streams in the state are flowing near average. Where reservoir evacuation has taken place this past month measured flow was well above normal, i.e., the Yakima at Parker's measured flow was 355% of average while the adjusted flow at Kiona, downstream, was only 195%. This same situation is true on the Okanogan and Skagit Rivers. The flow at The Dalles was 18% greater than normal adjusted for reservoir releases, while the measured flow was in the neighborhood of 60% greater. Forecasts of streamflow are essentially the same as released last month, percentagewise. There has been a general increase of forecasted amounts due to the increased precipitation and normal outflow but the situation has not been changed appreciably from that previously reported. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MAY 1972

following summarized runoff forecasts are based principally on mountain snow r and on the assumption that precipitation and temperature will be near average the present time to the end of the forecast period. Appreciable deviations normal of temperature and/or precipitation will correspondingly modify these casts. Streamflow figures for 1971 are preliminary and subject to revision.

n, Stream ion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
		COLUMBIA BASIN					
nbia River System							
nbia River Birchbank 1/	53570	123	May-Sep	45662	33048	43220	43577
	42800	123	May-Jul	36532	26426	35787	37692
	29700	122	May-Jun	26829	19447	27412	24252
nbia River Grand Coulee 1/	80000	127	May-Sep	68309	50708	62413	62799
	66600	127	May-Jul	57392	42654	53383	52240
	52500	134	May-Jun	44498	33665	42309	39230
nbia River . Rock Island Dam 1/	88500	128	May-Sep	77437	54409	67013	68964
	74100	129	May-Jul	65569	46101	57853	57500
	57500	133	May-Jun	50708	36540	46189	43110
nbia River The Dalles OR 1/	118500	128	May-Sep	108712	80458	90425	92456
	101000	131	May-Jul	92986	68366	78257	77330
	80600	135	May-Jun	74220	55159	63801	59690
Oreille River System							
Oreille River . Box Canyon	19800	143	May-Sep		13567	12406	13910
	17900	142	May-Jul		12506	11294	12669
	15100	142	May-Jun		10815	9272	10635
le River System							
le River . Laurier	1950	117	May-Sep	2020	1005	1747	1667
	1854	118	May-Jul	1956	974	1696	1571
	1644	118	May-Jun	1707	910	1556	1393

Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

treamflow Forecasts - May 1972 (Cont.)

asin, Stream nd tation	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
ettle River System (Cont.)							
olville River							
at Kettle Falls	110	112	May-Sep		63	141	98
	96	112	May-Jul		54	127	86
	85	112	May-Jun		49	111	76
pokane River System**							
pokane River							
at Post Falls ID 2/	3500	165	May-Sep	2862		1952	2120
	3400	168	May-Jul			1862	2025
	3100	165	May-Jun			1749	1882
anogan River System**							
milkameen River							
nr. Nighthawk	2080	147	May-Sep		816	1116	1431
	1950	147	May-Jul		775	1067	1325
	1610	146	May-Jun		705	969	1103
anogan River							
nr. Tonasket	2450	152	May-Sep		869	1296	1609
	2200	152	May-Jul		810	1201	1449
	1820	153	May-Jun		731	1079	1190
thow River System**							
thow River							
nr. Pateros	1470	152	May-Sep		593	942	969
	1370	153	May-Jul		557	896	895
	1160	155	May-Jun		503	830	748
elan River System							
elan River							
at Chelan 3/	1720	150	May-Sep		848	1188	1148
	1520	152	May-Jul		759	1080	1001
	1140	152	May-Jun		626	943	752
ehekin River							
at Stehekin	1280	155	May-Sep		641	868	827
	1080	155	May-Jul		553	760	695
	794	156	May-Jun		442	654	509
tiat nr.							
Ardenvoir	274		May-Sep		154	246	--
	254		May-Jul		142	230	--
	208		May-Jun		123	208	--

Forecasts made by J. Alden Wilson, Soil Conservation Service, Boise, Idaho. These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.
Observed flow corrected for storage in Couer d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.
Observed flow corrected for storage in Lake Chelan.

eamflow Forecasts - May 1972 (Cont.)

n, Stream ion	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Forecast Period	1971	1970	1969	15-Yr. Average 1953-67
tchee River System							
tchee River Plain	1770	150	May-Sep		930	1269	1183
	1590	151	May-Jul		852	1176	1053
	1210	151	May-Jun		715	1044	802
tchee River Peshastin	2409	150	May-Sep		1293	1706	1606
	2166	150	May-Jul		1195	1593	1444
	1673	151	May-Jun		1009	1422	1108
ilt Basin . Wenatchee	140*	--	May-Sep			145*	--
ma River System							
ma River . Martin 4/	177	150	May-Sep	178	108	128	118
	162	151	May-Jul	165	100	116	107
	134	152	May-Jun	125	91	108	88
ma River Cle Elum 5/	1217	154	May-Sep		733	856	790
	1096	155	May-Jul		670	782	707
	905	155	May-Jun		590	717	584
ma River . Parker 6/	2158	165	May-Sep		1218	1468	1308
	2132	165	May-Jul		1240	1483	1292
	1879	163	May-Jun		1188	1458	1153
es River . Easton 7/	160	157	May-Sep		93	111	102
	150	158	May-Jul		90	106	95
	128	158	May-Jun		83	99	81
Elum River . Roslyn 8/	639	154	May-Sep		386	422	415
	581	155	May-Jul		353	399	375
	470	155	May-Jun		301	366	303
ing River . Nile 9/	209	157	May-Sep		119	133	133
	191	158	May-Jul		112	125	121
	153	158	May-Jun		97	116	97

Thousands of Miners' inches
Observed flow corrected for storage in Lake Keechelus.
Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.
Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
Observed flow corrected for storage in Lake Kachess.
Observed flow corrected for storage in Lake Cle Elum.
Observed flow corrected for storage in Bumping Lake.

treamflow Forecasts - May 1972 (Cont.)

asin, Stream nd tation	Forecast Runoff 1972	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast Period	1971	1970	1969	15-Yr. Average 1953-67
akima River System (Cont.)							
erican River	177	158	May-Sep		119	121	112
nr. Nile	164	159	May-Jul		111	114	103
	132	159	May-Jun		97	104	83
ieton River at Tieton Dam 10/	335	155	May-Sep		220	233	216
	285	157	May-Jul		183	203	181
	218	158	May-Jun		147	180	93
aches River nr. Naches 11/	1197	160	May-Sep		748	820	748
	1082	162	May-Jul		686	752	668
	892	163	May-Jun		601	683	547
ntanum Creeks nr. Tampico 12/	59	148	May-Sep		37	44	40
	53	151	May-Jul		33	40	35
	46	153	May-Jun		29	37	30
ower Columbia River System							
ill Creek nr. Walla Walla	24	133	May-Sep		19	19	18
	19	136	May-Jul		15	15	14
	17	142	May-Jun		13	13	12
ewis River at Ariel 13/	1410	147	May-Sep	1397	631	1164	956
	1200	151	May-Jul	1184	514	982	796
	1000	152	May-Jun	924	440	854	657
owlitz bl. Mayfield Dam	2352	140	May-Sep		1246	1752	1680
	2012	141	May-Jul		1056	1525	1427
	1596	141	May-Jun		876	1324	1132
owlitz River at Castle Rock 14/	2940	139	May-Sep		1584	2290	2125
	2550	142	May-Jul		1324	1966	1794
	2020	142	May-Jun		1102	1684	1426
OLYMPIC PENINSULA							
ngeness River System							
ngeness River nr. Sequim	166	108	May-Sep		122	172	153
	134	110	May-Jul		101	144	122
	98	114	May-Jun		75	116	86

/ Observed flow corrected for storage in Rimrock Lake.
/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
/ Observed flow of North and South Forks (combined).
/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1972, as per cent of the same date in 1971 and 1970 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1972 Snow Water Expressed as per cent of		
			1971	1970	1953-67
UPPER COLUMBIA BASIN					
Pend Oreille	13 - 16	8 - 35	117	126	147*
Kettle	9	9 - 34	133	157	178*
Spokane	5 - 8	8 - 35	140	157	159*
Okanogan	23 - 33	7 - 37	145	185	187*
Methow	4 - 5	11 - 30	105	154	184*
Chelan	2	11 - 40	124	206	163*
Entiat	7 - 8	5 - 7	108	198	167*
Wenatchee	4 - 9	11 - 40	117	214	238*
Yakima	10 - 13	6 - 52	98	153	214*
LOWER COLUMBIA					
Mill Creek	1	23	127	100	195
White Salmon	2	16	92	180	161*
Lewis	13 - 16	11 - 28	76	379	182*
Cowlitz	2 - 4	9 - 32	106	156	173*
PUGET SOUND					
White	1	16	60	96	98*
Green	1 - 3	11 - 26	86	134	105*
Snoqualmie	1	16	93	160	170*
Skykomish	2	14 - 26	110	160	173*
Skagit	9 - 13	1 - 28	92	187	190*
Baker	7 - 10	3 - 14	93	223	133*
Nooksack	1	3	102	159	--
OLYMPIC PENINSULA					
Skokomish	3	1	--	169	--
Elwha	1	19	78	192	123*
Dungeness	1	19	90	166	136*

* Records of less than 15 years used on computation of averages

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE CAPACITY 1/	Measured May 1972	1971	1970	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	208.7	281.3	149.5	299.9
Columbia	Franklin D. Roosevelt Lake	5232.0	497.3	743.6	538.5	2444.9
Columbia	Banks Lake	761.8	213.2	543.1	648.0	409.7
Okanogan	Conconully Reservoir	13.0	10.6	7.4	8.1	7.6
Okanogan	Salmon Lake	10.5	9.5	3.0	7.6	8.7
Chelan	Lake Chelan	676.1	205.1	192.6	74.3	210.0
		YAKIMA				
Yakima	Keechelus Lake	157.8	106.1	98.4	99.3	120.6
Kachess	Kachess Lake	239.0	161.2	166.2	196.2	202.4
Cle Elum	Lake Cle Elum	436.9	171.6	238.0	216.9	323.2
Bumping	Bumping Lake	33.7	6.4	3.8	7.7	20.1
Tieton	Rimrock Lake	198.0	64.5	112.2	119.5	154.1
		PUGET SOUND				
Skagit	Ross Reservoir	1202.9	768.7	775.9	541.0	695.4
Skagit	Diablo Reservoir	90.6	88.4	88.4	86.4	85.2
Skagit	Gorge Reservoir	9.8	8.4	8.5	8.0	--

1/ Based on Active Storage

15-year average 1953-67

SOIL MOISTURE - MAY

inage Basin tion	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of May 1 1972	1971	1970
B CREEK							
k Woods	18B3m	2600	48	13.6	9.4	10.2	10.4
use	18B4m	2440	48	13.6	8.9	9.7	9.2
ffels	18B5m	2360	48	13.6	9.5	9.5	8.7
rman	18B7m	2440	48	13.6	8.7	8.8	8.9
atridge	18B6m	2200	48	13.6	10.0	10.4	9.6
NOGAN							
mon Meadows	19A2M	4500	48	5.4	3.8	3.8	3.7
ut Creek	3-M	3600	48	7.3	5.6*	4.0	--
IMA							
ery Flat	21B20m	2200	48	6.9	4.8	4.8	5.6
e Cle Elum	21B14M	2200	48	12.8	9.1	9.2	9.2
LA WALLA							
se	17C3m	3650	48	11.1	10.5	10.0	10.4
mers	17C2M	4400	48	12.0	10.7	10.2	10.5
ATCHEE							
er Wheeler	20B7M	4400	48	12.7	12.2	11.4	6.3

pril 1 report

FALL SOIL MOISTURE

inage tion	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Oct. 1 1971	1970	1969
B CREEK							
k Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
use	18B4m	2420	48	13.6	5.0	4.4	5.9
ffels	18B5m	2380	48	13.6	5.3	4.4	4.5
rman	18B7m	2440	48	13.6	4.0	3.8	4.2
atridge	18B6m	2290	48	13.6	5.5	7.8	5.4
NOGAN							
mon Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
ut Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
IMA							
ery Flat	21B20m	2200	48	6.9	2.1	2.4	--
e Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
LA WALLA							
se	17C3m	3650	48	11.1	6.2	5.9	6.1
mers	17C2M	4400	48	12.0	8.2	7.3	7.1
ATCHEE							
er Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

inage ision	FALL Sept-Oct 1971 2/ Observed	Departure	WINTER Nov. '71 - Mar. '72 2/ Observed	Departure	SPRING April '72 2/ Observed	Departure
umbia in Canada	4.45	+ 0.56	18.14	+ 5.45	1.65	+ 0.27
d Oreille - Spokane	4.63	+ 0.48	22.16	+ 3.91	2.51	+ 0.18
theastern Washington	3.16	+ 0.91	9.92	- 1.17	1.61	+ 0.18
theastern Washington	3.73	+ 1.08	15.47	+ 3.06	1.92	+ 0.04
tral Washington	4.15	- 0.29	39.29	+12.16	2.02	- 0.19
th Central Washington	1.99	+ 0.58	10.09	+ 3.75	1.05	+ 0.28
thwest Slope Cascades	11.60	- 0.07	66.90	+14.76	8.28	+ 2.37
thwest Slope Cascades	9.33	+ 1.61	54.96	+14.09	6.78	+ 2.45

theastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

theastern Washington - Touchet, Tucannon and Palouse drainages

tral Washington - Yakima, Wenatchee and Chelan drainages.

th Central Washington - Methow and Okanogan drainages.

thwest Slope Cascades - Puget Sound drainages.

thwest Slope Cascades - Lower Columbia drainages.

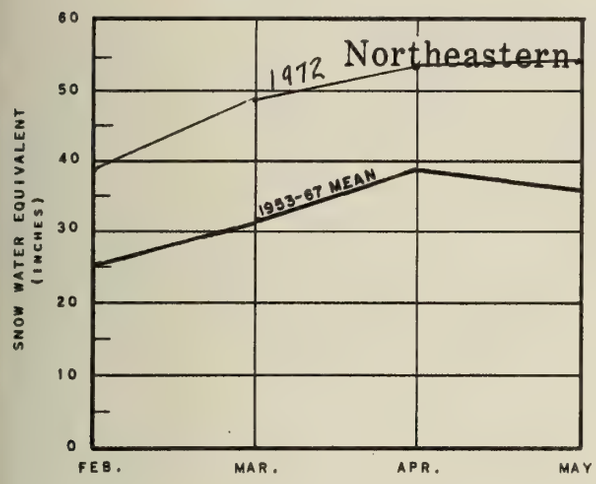
· Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service

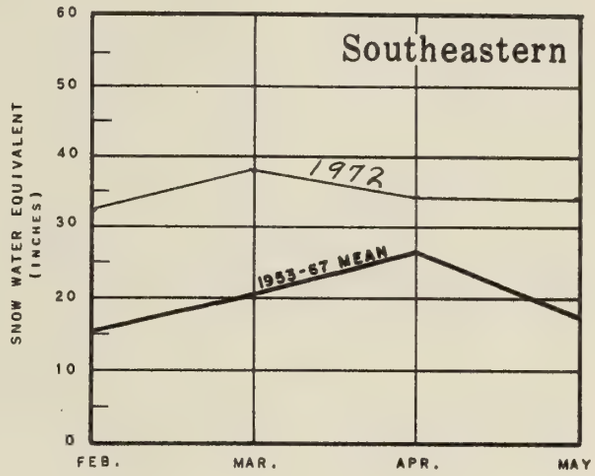
· Departure from 15-year (1953-67) drainage division average.

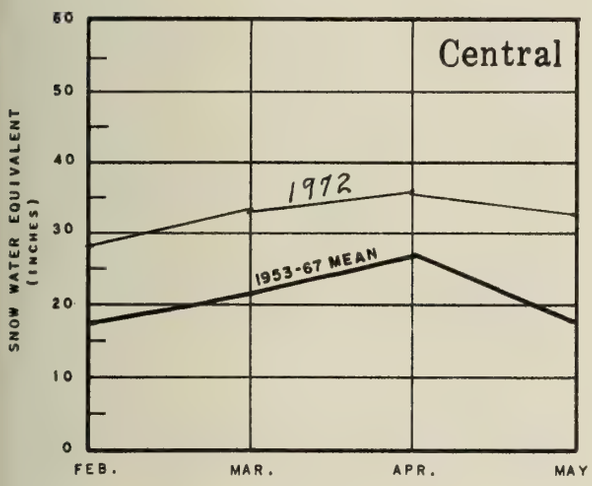
WASHINGTON SNOW COVER

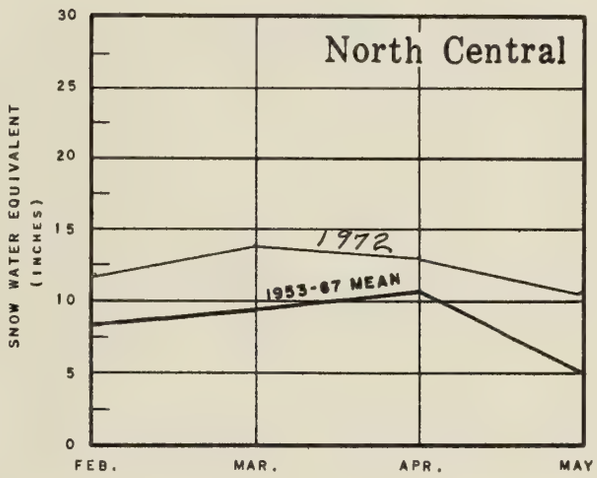
1972

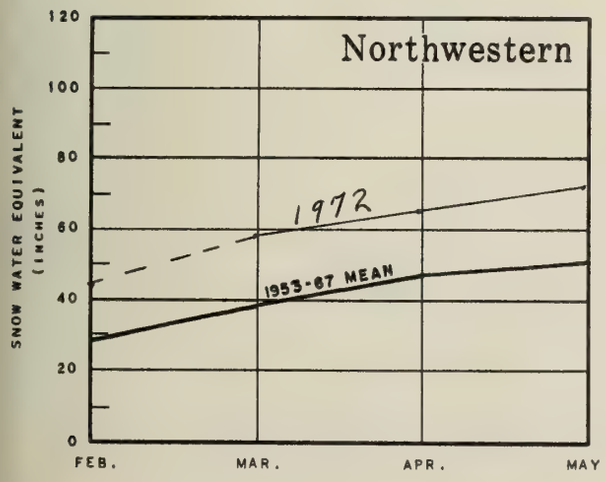
DRAINAGE AREAS

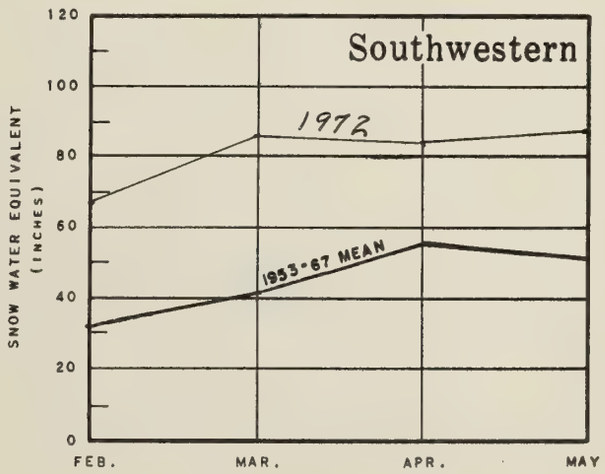










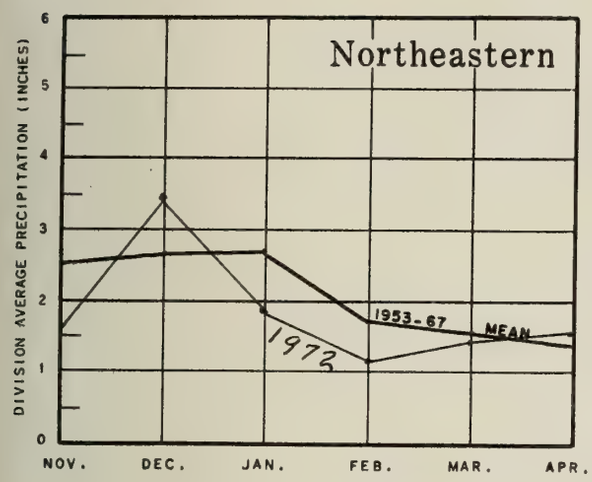


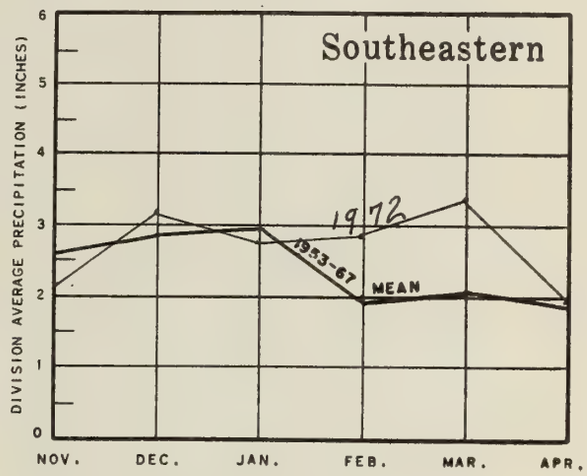
Selected Snow Survey Courses by Soil Conservation Service

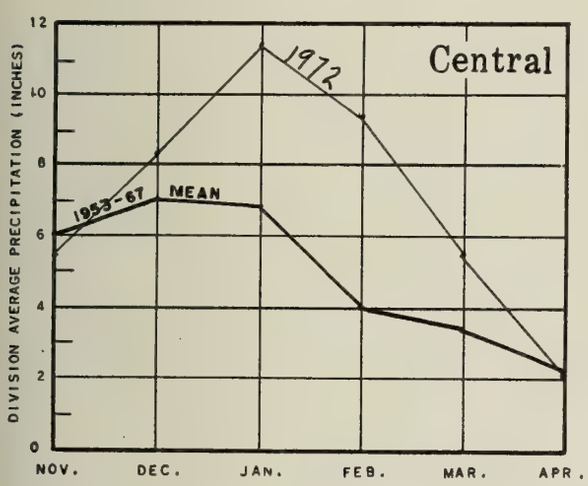
WASHINGTON VALLEY PRECIPITATION

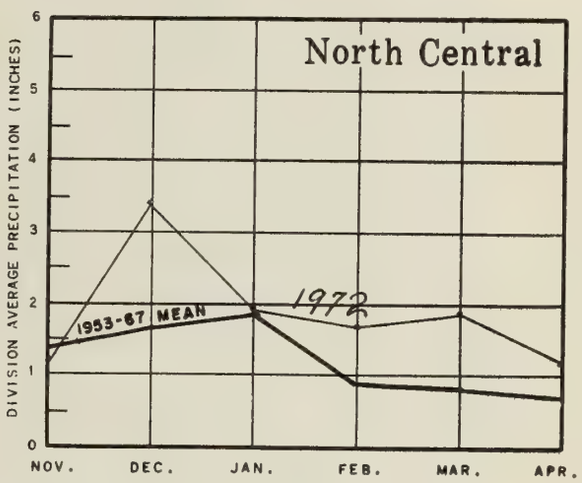
1971-1972

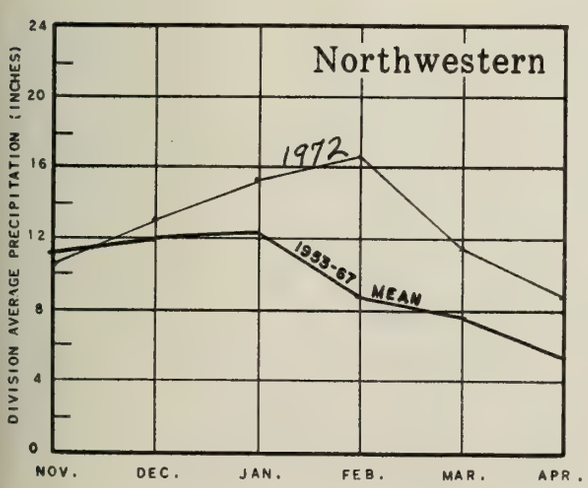
DRAINAGE AREAS

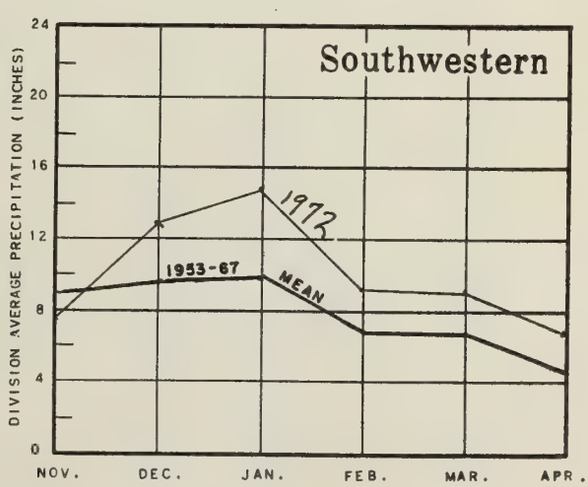












Preliminary Analysis by National Weather Service

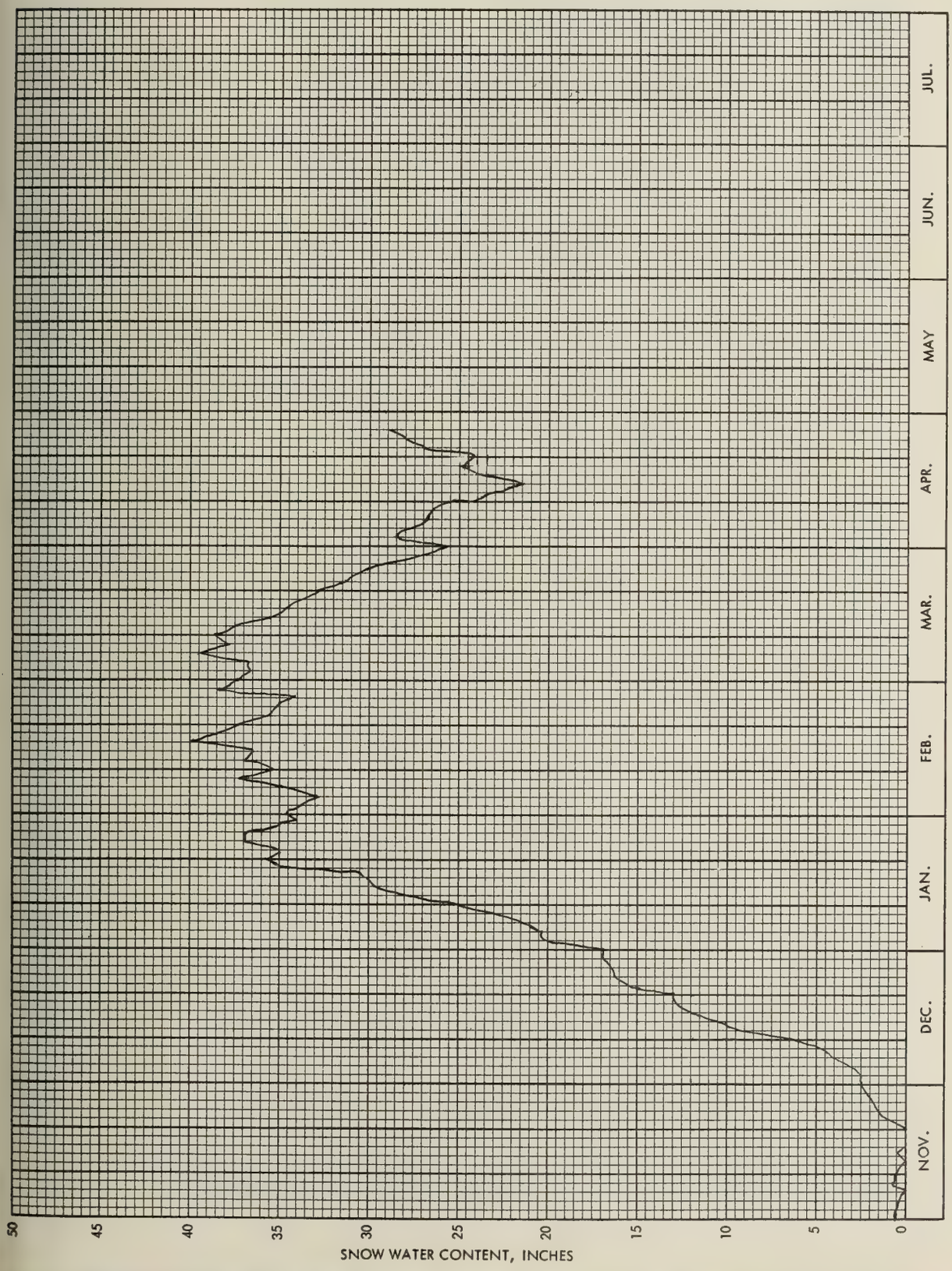
Cougar Mountain - FS

SNOW PILLOW DATA

AS OF May 1, 1972

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



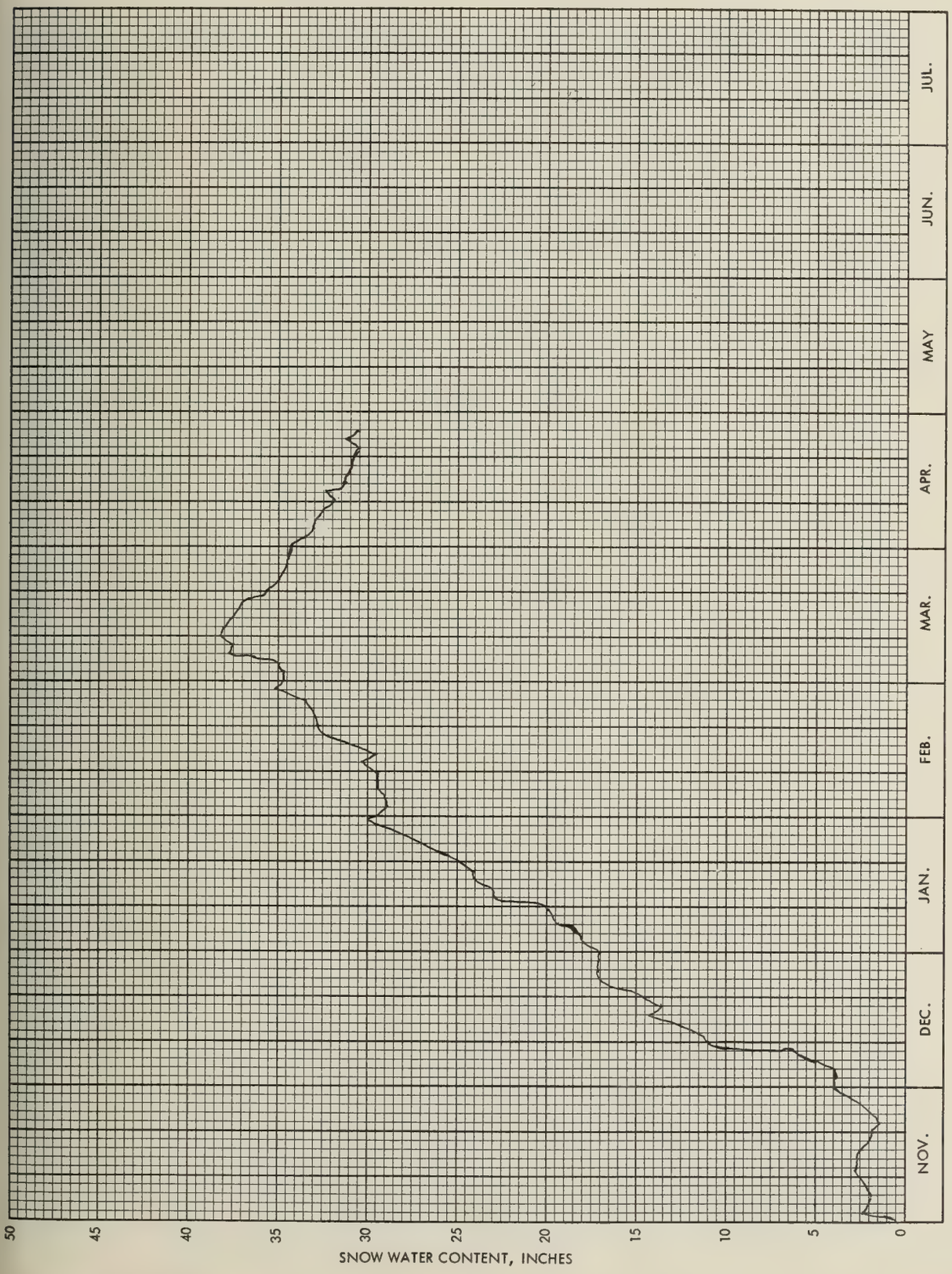
Berne-Mill Creek

SNOW PILLOW DATA

AS OF May 1, 1972

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee R.

Lat. 47° 45' Long. 121° 42' Elev. 3240'



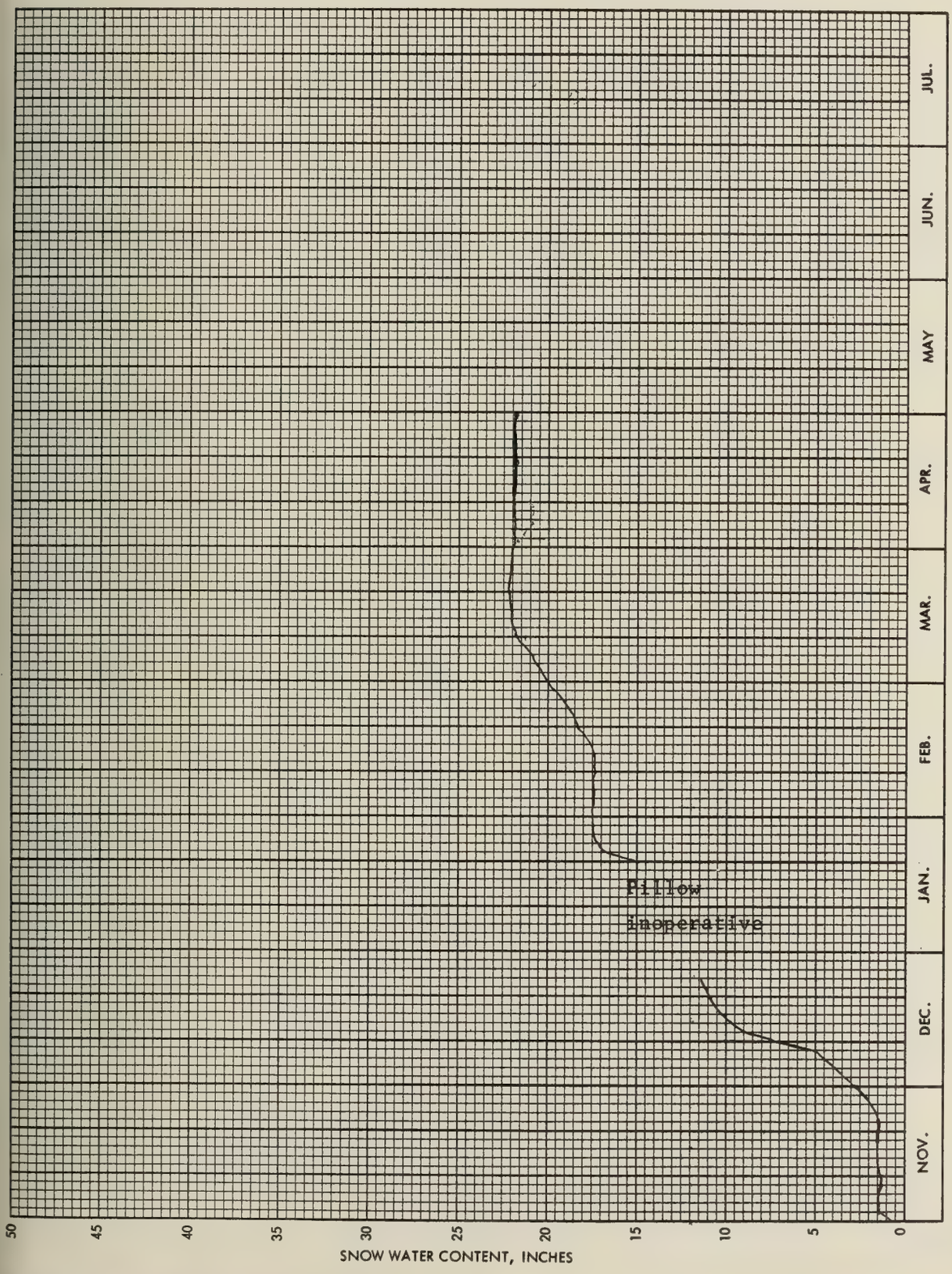
Trough No. 2

SNOW PILLOW DATA

AS OF May 1, 1972

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Wenatchee

Lat. 47° 14' Long. 120° 19' Elev. 5310'



APPENDIX 1
SNOW DATA APRIL 1 to MAY 1, 1972

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/1	140	69.3	59.4	48.4
Baree Midway	15B16	4600	5/1	101	49.7	38.5	35.8
Baree Trail	15B15	3800	5/1	4	1.8	0.0	1.0
Benton Meadow	16A2	2344	4/30	0	0.0	0.0	0.0
Benton Spring	16A3	4900	4/30	40	19.2	16.7	17.1
Boyer Mountain	17A2	5250	4/27	61	30.0	30.4	25.2
Brush Creek	14A4	5000	4/25	30	13.7	10.0	10.8
Bunchgrass Meadow	17A1	5000	4/26	74	36.0	29.1	30.4
Heart Lake Trail	14C10	4800	4/28	78	38.7	29.5	17.2
Hoodo Basin	15C10	6000	4/28	173	88.0	68.8	55.8
Hoodo Creek	15C1	6200	4/28	168	85.9	66.1	52.0
Lookout	15B2	5250	4/17	124	57.1	48.7	--
			5/1	107	54.0	44.5	36.7
Nelson	Canada	3050	4/27	26	11.4	11.6	7.0**
Schweitzer Bowl	16A6	4500	4/28	66	32.7	34.0	--
Schweitzer Ridge	16A5	6100	4/28	125	57.8	58.5	--
Smith Creek	16A1	4800	5/2	118	59.8	54.9	49.4
Winchester Creek	17A3	2970	4/27	0	0.0	6.9	0.5*
KETTLE RIVER							
Barnes Creek	Canada	5500	4/27	70	29.2	23.7	21.1**
Big White Mountain	Canada	5500	4/27	70	26.1	26.1	21.2**
Boulder Road	18A2	1450	4/25	0	0.0	0.0	--
Butte Creek	18A3	4070	4/25	14	4.7	8.3	5.5*
Cabin Creek	18A8	3170	4/25	6	2.0	6.3	1.4*
Carmi	Canada	4100	4/27	15	6.8	1.9	1.5**
Farron	Canada	4000	4/26	28	13.7	12.7	7.9**
Goat Creek	18A4	3595	4/25	0	0.0	0.0	--
Lower Trapping Creek	Canada	3050	4/27	0	0.0	0.0	--
Monashee Pass	Canada	4500	4/27	46	19.7	14.3	13.2**
Old Glory Mountain	Canada	7000	4/30	99	40.1	37.1	30.6**
Snow Caps Creek	18A5	2150	4/25	0	0.0	0.0	--
Snow Caps Trail	18A6	2720	4/25	0	0.0	0.0	--
Upper Trapping Creek	Canada	5500	4/27	28	11.7	6.8	5.7**
SPOKANE RIVER							
Copper Ridge	16B2	4800	4/27	77	40.3	26.2	27.8
Forty-nine Meadows	15B3	5000	4/28	96	43.5	45.8	30.6*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

USDA-SCS-PORTLAND, OREG. 1970

+ 1953-1967 period

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
SPOKANE RIVER (Cont.)							
Fourth of July Summit	16B3	3100	5/1	0	0.0	0.0	--
Granite Peak	15B13A	6000	4/28	190	89.3	63.8	--
#Lookout	15B2	5250	4/17	124	57.1	48.7	--
			5/1	107	54.0	44.5	36.7
Lost Lake	15B14A	6000	4/28	224	105.3	82.0	62.7*
Lower Sands Creek	16B1	3400	4/27	61	28.0	20.6	14.6
Medicine Ridge	15B4A	6150	4/28	155	77.5	63.0	--
#Mosquito Ridge SP	16A4A	5110	4/30		47.0		
Outlaw Creek	15B12A	3750	4/28	0	0.0	0.0	8.0*
Sherwin	16C1	3200	4/28	40	18.4	8.2	--
OKANOGAN RIVER							
Aberdeen Lake	Canada	4300	5/1	11	4.5	0.0	1.7**
Blackwall Peak	Canada	6250	4/28	136	58.0	54.2	38.1**
Bouleau Creek	Canada	5000	4/30	40	14.7	11.4	8.4**
Bouleau Lake	Canada	4500	4/30	55	18.2	16.4	--
Brenda Mine	Canada	4800	4/27	49	20.7	11.0	9.2**
Brookmere	Canada	3200	4/26	44	15.7	13.8	5.6**
Carrs Landing Lower	Canada	2250	4/28	0	0.0	0.0	--
Carrs Landing Upper	Canada	3200	4/28	0	0.0	0.0	--
Clark +	19A8a	7000	5/1	105	48.3	28.3	24.4*
Enderby	Canada	6250	4/28	140	55.0	50.0	41.4**
#Freezeout Meadows Alt.	20A2	5000	4/27	88	39.2	61.1	31.6
Hamilton Hill	Canada	4900	4/30	70	33.0	17.7	12.2**
#Harts Pass	20A5A	6500	4/26	161	72.7	65.8	49.8
Isintok Lake	Canada	5510	4/30	46	17.1	7.7	6.2**
Lost Horse Mountain	Canada	6300	4/27	59	21.8	14.6	10.0**
#Loup Loup	19A7	4650	4/26	14	6.2	10.4	--
Lower Esperon Creek	Canada	4270	5/1	36	14.6	15.0	11.2**
McCulloch	Canada	4200	4/24	17	6.1	2.7	2.8**
Middle Esperon Creek	Canada	4580	5/1	45	18.9	21.7	14.2**
Missezula Mountain	Canada	5100	Not Measured			--	4.5**
Mission Creek	Canada	6000	4/27	76	30.0	24.9	22.0**
Monashee Pass	Canada	4500	4/27	46	19.7	14.3	13.2**
Mount Kobau	Canada	5950	4/28	55	17.6	17.4	14.1**
Muckamuck +	19A9a	6390	5/1	58	21.2	23.0	--
Mutton Creek No. 1	19A1	5700	4/27	48	23.0	17.1	10.0
Mutton Creek No. 2	19A4	6000	4/27	57	24.0	20.7	15.1
New Copper Mountain	Canada	4300	4/29	12	6.0	1.9	--
New Penticton Res.	Canada	6200	4/28	44	15.0	--	--

Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

A-SCS-PORTLAND, OREG. 1970

† 1953-1967 period

APPENDIX 3

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
OKANOGAN RIVER (Cont.)							
Nickel Plate Mtn.	Canada	6200	4/27	51	17.0	10.1	7.5**
Postill Lake	Canada	4500	4/28	30	10.6	8.2	6.7**
#Quartette Lake	Canada	4000	4/29	55	23.6	--	--
Rusty Creek	19A3	4000	4/27	0	0.0	0.0	1.3*
Salmon Meadows	19A2	4500	4/27	22	10.7	10.0	5.0
Silver Star Mtn.	Canada	6050	4/22	103	44.2	33.5	27.5**
Starvation Mtn.+	19A10a	6750	5/1	78	21.2	27.1	25.1*
Summerland Res.	Canada	4200	4/29	35	14.5	8.6	5.9**
Touts Coulee	19A6	2845	5/1	0	0.0	--	--
Trout Creek	Canada	4700	4/25	41	15.2	7.1	4.9**
Upper Esperon Creek	Canada	5290	5/1	67	24.1	25.1	21.9**
Vaseux Creek	Canada	4050	4/30	22	7.0	1.6	--
White Rocks Mtn.	Canada	6000	4/28	76	35.9	30.6	--
METHOW RIVER							
Harts Pass	20A5A	6500	4/26	161	72.7	65.8	49.8
Loup Loup	19A7	4650	4/26	14	6.2	10.4	--
#Mutton Creek No. 1	19A1	5700	4/27	48	23.0	17.1	10.0
#Mutton Creek No. 2	19A4	6000	4/27	57	24.0	20.7	15.1
#Rusty Creek	19A3	4000	4/27	0	0.0	0.0	1.3*
#Salmon Meadows	19A2	4500	4/27	22	10.7	10.0	5.0
CHELAN LAKE BASIN							
Rainy Pass	20A9	4780	4/26	143	69.0	58.4	43.9
Safety Harbor	20A30A	6300	4/24	118	51.1	39.5	30.2*
ENTIAT RIVER							
Brief	20B19	1600	4/28	0	0.0	0.0	0.0*
Entiat Meadows +	20A33a	4800	5/1	120	61.2	55.5	37.0*
Entiat River Trail +	20A34a	3150	5/1	28	14.4	22.3	10.7*
Fox Camp +	20A36a	6510	5/1	182	92.8	82.8	57.6*
Pope Ridge	20B20	4300	4/27	31	16.2	18.5	8.3*
Pugh Ridge +	20A32a	6400	5/1	125	63.8	48.2	34.7*
Shady Pass	20A37	5000	4/28	107	54.2	27.4	--
Snow Brushy +	20A35a	3850	5/1	101	51.5	46.9	27.5*
Tommy Creek +	20B21a	5300	5/1	60	30.6	31.0	212.*

\# Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

A-SCS-PORTLAND, OREG. 1970

+ 1953-1967 period

APPENDIX 4

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	NO.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	4/26	85	43.5	41.7	18.2*
Berne-Mill Creek New	21B41SP	3240	4/26	52	28.2	34.2	--
Blewett Pass No. 2	20B2	4270	4/13	60	31.8	22.5	12.1*
			4/28	50	27.5	19.7	8.9
Chiwaukum G. S.	20B16	1810	4/26	24	11.6	8.8	--
#Fish Lake	21B4	3371	4/27	101	56.1	55.1	24.1*
Lake Wenatchee	20B5	1970	4/27	29	14.4	9.8	--
Leavenworth R. S.	20B17	1127	4/24	0	0.0	0.0	--
Merritt	20B18	2140	4/26	44	19.8	15.2	--
Stevens Pass	21B1	4070	4/14	165	78.1	74.2	55.7*
			4/26	171	92.8	77.8	53.5
Stevens Pass S. Shed	21B45	3700	4/14	106	52.5	53.0	--
			4/26	110	55.3	54.9	--
QUILCHUCK CREEK							
Beehive Springs	20B3	4400	4/28	8	4.3	4.8	--
Scout-A-Vista	20B4	3400	4/28	0	0.0	2.0	--
STEMILT CREEK							
Jump-Off	20B8	4450	4/26	15	8.0	7.4	--
Stemilt Slide	20B6	5000	4/27	26	14.0	15.3	4.0
Upper Wheeler	20B7	4400	4/27	0	0.0	3.7	--
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	4/26	31	17.3	16.0	--
Colockum Creek Lower	20B23	4300	4/26	4	1.8	7.0	--
YAKIMA RIVER							
#Ahtanum R. S.	21C11	3100	5/1	0	0.0	0.0	0.0
Big Boulder Creek	21B9	3200	4/27	46	23.6	26.4	5.0*
#Blewett Pass No. 2	20B2	4270	4/13	60	31.8	22.5	12.1*
			4/28	50	27.5	19.7	8.9
Bumping Lake	21C8	3450	4/14	45	19.5	28.2	13.3*
			5/1	32	16.2	20.9	9.3
Bumping Lake New	21C36	3400	4/14	60	26.9	33.8	--
			5/1	47	23.6	27.0	--
#Cayuse Pass	21C6	5300	4/26	288	139.1	--	--

\# Not located directly on this drainage
* Adjusted 1953-67 average

SCS-PORTLAND, OREG. 1970

+ 1953-1967 period

APPENDIX 5

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
YAKIMA RIVER (Cont.)							
Lemah Creek +	21B47a	3327	4/26	119	64.3	57.8	--
Fish Lake	21B4	3371	4/27	101	56.1	55.1	24.1*
Joe Lake +	21B46a	4624	Marker buried				
Lake Cle Elum	21B14M	2200	4/18	24	10.9	0.0	--
			5/1	0	0.0	--	--
Morse Lake	21C17	5400	4/27	183	48.0	102.6	62.4*
#Olallie Meadows	21B2	3625	4/13	165	79.2	80.0	51.0*
			4/27	163	81.8	88.0	48.1*
#Satus Pass	20D1	4030	4/28	0	0.0	13.0	--
#Stampede Pass	21B10	3000	4/15	145	43.8	70.6	48.6
			5/1	157	48.1	59.8	46.0
Tunnel Avenue	21B8	2450	4/15	76	35.3	35.3	21.5*
			4/30	67	32.4	32.3	17.4
Van Epps Pass +	20B26a	5925	Marker buried			80.4	--
Waptus Lake +	21B49a	3024	4/26	122	65.8	59.2	--
White Pass (E. Side)	21C28	4500	4/17	112	50.9	41.6	27.8*
			5/2	105	51.9	40.1	26.2*
White Pass (L. Lake)	21C27	4500	Not Measured			47.2	29.6*
			4/26	114	55.0	--	28.0
AHTANUM CREEK							
Ahtanum R. S.	21C11	3100	5/1	0	0.0	0.0	0.0*
LOWER COLUMBIA							
ASOTIN CREEK							
Spruce Springs	17C4	5700	4/27	71	35.3	26.5	--
MILL CREEK							
Tollgate	18D3M	5070	4/27	67	34.2	26.9	17.5
KLICKITAT RIVER							
Satus Pass	20D1	4030	4/28	0	0.0	13.0	--
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	4/26	142	69.9	78.6	47.8*
#Surprise Lakes	21C13A	4250	4/26	172	88.7	92.7	50.5*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

† 1953-1967 period

APPENDIX 6

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
WIND RIVER							
Old Man Pass	21D19	3100	4/26	55	25.7	42.0	11.4
LEWIS RIVER							
Blue Lake +	21C22a	4800	4/26	288	144.0	141.0	90.1*
Bob's Trail	21C21	2200	4/26	41	20.0	26.3	5.7*
Calamity Ridge +	22D1a	2500	4/26	3	1.0	10.8	--
Council Pass +	21C18a	4200	4/26	136	69.4	68.0	35.4*
#Cultus Creek	21C12	4000	4/26	142	69.9	78.6	47.8*
Divide Meadow +	21C29a	5600	4/26	217	112.8	94.5	61.6*
Grand Meadow	21C25	3500	4/26	79	38.2	42.3	22.2*
Lone Pine Shelter	21C26	3800	4/26	140	63.9	83.4	45.3*
Marble Mountain +	22C5a	3200	4/26	100	52.0	84.2	31.3*
#Mosquito Meadows	21C19	4100	4/26	136	65.2	--	--
New Muddy River	22C6	1400	4/26	0	0.0	6.7	--
Old Man Pass	21D19	3100	4/26	55	25.7	42.0	11.4*
Plains of Abraham +	22C1a	4400	4/26	198	103.0	123.0	73.8*
Smith Creek Road	22C4	2100	4/26	29	15.2	30.7	--
Spencer Meadow +	21C20a	3400	4/26	62	30.4	42.3	13.0*
Surprise Lakes	21C13A	4250	4/26	172	88.7	92.7	50.5*
Table Mountain +	21C24a	4200	4/26	145	74.0	81.0	44.7*
Timbered Peak +	21D18a	3000	4/26	25	11.8	30.8	12.3*
COWLITZ RIVER							
Cayuse Pass	21C6	5300	4/26	288	139.1	--	--
Mosquito Meadows	21C19	4100	4/26	136	65.2	--	--
Pigtail Peak	21C33	5900	4/17	246	124.7	103.2	74.1*
			5/2	233	122.2	--	77.6*
#Plains of Abraham +	22C1a	4400	4/26	198	103.0	123.0	73.8*
Potato Hill	21C14	4500	4/26	108	52.5	--	--
#White Pass (E. Side)	21C28	4500	4/17	112	50.9	41.6	27.8*
			5/2	105	51.9	40.1	26.2*
#White Pass (L. Lake)	21C27	4500	Not Measured			47.2	29.6*
			4/26	114	55.0	--	28.0*
PUGET SOUND DRAINAGE							
NISQUALLY RIVER							
Ghost Forest	21C4	4550	4/26	182	88.5	--	--
Longmire	21C3	2760	4/26	40	17.7	--	--

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

+ 1953-1967 period

APPENDIX 7

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (inches)	Water Content (inches)	Last Year	Average +
NISQUALLY RIVER (Cont.)							
New Paradise Park	21C35	5500	4/26	269	130.2	--	--
Stem Glade	21C1	5050	4/26	261	123.2	--	--
WHITE RIVER							
#Cayuse Pass	21C6	5300	4/26	288	139.1	--	--
#Morse Lake	21C17	5400	4/27	183	61.2	102.6	62.4
GREEN RIVER							
Cougar Mountain SP	21B42SP	3200	4/27	46	23.4	35.0	--
Snowshoe Butte SP	21B43SP	5000	4/27	208	101.7	91.8	--
Stampede Pass	21B10	3000	4/15	145	43.8	70.6	48.6
			5/1	157	48.1	59.8	46.0
SNOQUALMIE RIVER							
Olallie Meadows	21B2	3625	4/13	165	79.2	80.0	51.0*
			4/27	163	81.8	88.0	48.1*
SKYKOMISH RIVER							
#Stevens Pass	21B1	4070	4/14	165	78.1	74.2	55.7*
			4/26	171	92.8	77.8	53.5
#Stevens Pass S. Shed	21B45	3700	4/14	106	52.5	53.0	--
			4/26	110	55.3	54.9	--
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	4/26	28	11.7	24.3	5.6*
Beaver Pass	21A1	3680	4/26	114	50.6	59.9	35.0
Brown Top +	21A28a	6000	4/27	227	104.4	91.0	--
Devils Park	20A4	5900	4/26	165	74.8	60.8	49.2
Freezeout Cr. Trail	20A1	3500	4/27	42	19.0	22.3	8.3
Freezeout Mead. Alt.	20A2	5000	4/27	88	39.2	61.1	31.6
Granite Creek	21A29	3500	4/26	65	28.6	27.4	--
#Harts Pass	20A5A	6500	4/26	161	71.3	65.8	49.8
Klesilkwa	Canada	3700	4/30	64	29.5	--	--
Lake Hozomeen	21A2	2600	4/27	28	9.9	19.5	5.8
Meadow Cabins	20A8	1900	4/26	21	8.8	6.4	2.0*
New Lake Hozomeen	21A30	2600	4/27	32	13.0	24.5	--

Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

+ 1953-1967 period

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
SKAGIT RIVER (Cont.)							
New Tashme	Canada	2500	5/1	35	17.1	--	--
Quartette Lake	Canada	4000	4/29	55	23.6	--	--
#Rainy Pass	20A9	4780	4/26	143	69.0	58.4	43.9
Thunder Basin	20A7	4200	4/26	87	36.8	36.1	26.9*
BAKER RIVER							
Dock Butte	21A11A	3800	5/1	237	110.0	107.2	87.1*
Easy Pass	21A7A	5200	4/27	283	125.6	113.7	107.4*
Jasper Pass	21A6A	5400	4/27	281	134.0	129.2	113.6*
Komo Kulshan	21A17	800	4/28	7	3.8	6.8	--
Marten Lake	21A9A	3600	5/1	244	118.5	111.3	93.3*
Mount Blum +	21A18a	5800	Not Measured			82.3	--
			Not Measured			83.0	--
#Panorama New	21A26	4300	4/14	212	86.4	105.5	--
			4/27	215	110.3	107.8	--
Rocky Creek	21A12A	2100	5/1	91	43.7	56.0	20.4*
Schreibers Meadow	21A10A	3400	5/1	189	89.6	101.8	73.7*
S. F. Thunder Creek	21A14A	2200	5/1	0	0.0	10.3	--
Sulphur Creek	21A13	1600	5/1	42	19.9	27.3	--
Three Mile Creek	21A8A	4500	5/1	0	0.0	0.0	--
Watson Lakes	21A8A	4500	5/1	241	114.4	107.4	83.6*
NOOKSACK RIVER							
Glacier Creek	21A23	3700	4/27	90	40.0	--	--
Panorama New	21A26	4300	4/14	212	86.4	105.5	--
			4/27	215	110.3	107.8	--
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B4	5200	4/28	66	33.1	36.9	24.3*
MORSE CREEK							
Cox Valley	23B14	4500	4/30	126	51.5	68.3	--

Not located directly on this drainage
+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

SDA-SCS-PORTLAND, OREG. 1970

+ 1953-1967 period

APPENDIX 9

NOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
ELWHA RIVER							
Hurricane	23B3	4500	4/25	83	34.4	44.0	28.0*
SKOKOMISH RIVER							
Black & White	23B7	4200	4/26	130	59.5	--	--
Black & White Lakes	23B6	4700	4/26	182	91.2	--	--
Four Streams	23B10	3000	Not Measured				
Home Sweet Home	23B5	5200	4/26	246	116.0	--	--

* Adjusted 1953-67 average

+ 1953-1967 period

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROOM 360, U.S. COURT HOUSE
SPOKANE , WASHINGTON 99201

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"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK FOR WASHINGTON

THE LIBRARY OF THE
JUN 9 1972
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
JUNE 1, 1972

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA SCS PORTLAND, OREG 1970

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by

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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

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STATE OF WASHINGTON

Report prepared by

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SPOKANE, WASHINGTON 99201

WATER SUPPLY OUTLOOK

State of Washington
June 1, 1972

* *
* In spite of the excessive high water that has been experienced, *
* during the last of May and first of June, in certain portions *
* of the state the weather has been very favorable to an orderly *
* runoff. Periods of hot weather were followed by sub-normal *
* temperatures. This type of weather pattern, while extending *
* the runoff period reduces the maximum stages that could have *
* been experienced. Precipitation was above normal except on the *
* west side and in the Columbia drainage in Canada during May. *
* The greatest above normal, percentagewise, occurred in the *
* North Central area that produced the high water. Lack of daily *
* temperature and rainfall records from the water-producing areas, *
* both in the United States and Canada, prevented the flood fore- *
* casting agencies from making earlier assessments of water stages *
* expected. The snow was in the mountains that could have pro- *
* duced much higher peaks than have already occurred. *
* *
* Volumewise it appears that the forecasted flows will closely *
* approach the actual runoff both that which has occurred and *
* that which is yet to come. There is still plenty of snow at *
* the higher elevations which will tend to sustain flows during *
* the summer runoff season. *
* *

SNOW COVER

There are not too many snow courses measured on May 15 and even fewer on June 1. Most of the snow courses below 4000 feet elevation are now bare except in the Cascade Range but in the areas where there is snow it is well-above average. The snow is very dense and any rain that falls on it flows out the bottom almost immediately while increasing the snow melt substantially. Most of the snow courses that do have a history of snow cover on June 1 have a snowpack that ranges from 150 percent to 300 percent of normal with a marked increase, percentagewise, from that measured on May 15.

RESERVOIRS

Several of the irrigation and power reservoirs in the state have been filled, while most are still being held down for flood control. Reservoirs, like Coeur d'Alene Lake, with restricted outlet channels have filled involuntarily. Others have been operated to pass the greatest amount, without damage to the reaches below the dams, but inflows have brought them up to higher levels than wished. All reservoirs will fill and with the expected late-season runoff carry-over storage will be good.

PRECIPITATION

As stated above, precipitation during May was normal or above in all areas except for three drainage divisions, as reported by the National Weather Service. When combined with April rainfall only the central area of Yakima, Wenatchee and Chelan had below-normal rainfall and that only by four percent. The north central drainage division of the Methow and Okanogan drainages continues to have well above-normal valley precipitation.

STREAMFLOW

There was only one river, the Chehalis in southwestern Washington, considered in this report that had below normal runoff and this only by two percent. This resulted from the 34 percent below-normal precipitation which occurred in that area. All other rivers have reported above to well above-normal runoffs during May. The range on the main stem of the Columbia was 13 percent above at Birchbank to 28 percent above at The Dalles. High flows, 83 and 84 percent above normal, were experienced on the Similkameen and Okanogan Rivers during the month. Inflow to the five Yakima reservoirs was 51 percent above normal while the Walla Walla as measured at Touchet had flows 45 percent above normal. Even the Palouse River which drains north central Idaho and eastern Washington grain lands had a flow that was 46 percent above normal.

RESERVOIR STORAGE - 1000 Acre Feet

ASIN or TREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (June) 1972	1971	1970	Normal*
		COLUMBIA				
pokane	Coeur d'Alene Lake	225.1	467.2	387.6	344.9	327.0
olumbia	Franklin D. Roosevelt Lake	5232.0	1722.0	2703.6	2141.4	3965.2
olumbia	Banks Lake	761.8	381.3	517.7	712.2	435.3
kanogan	Conconully Reservoir	13.0	12.1	12.0	5.9	9.8
kanogan	Salmon Lake	10.5	10.5	7.8	9.3	9.6
helan	Lake Chelan	676.1	481.3	461.4	309.6	467.6
		YAKIMA				
akima	Keechelus Lake	157.8	138.2	143.0	144.6	144.8
achess	Kachess Lake	239.0	209.8	222.2	219.4	228.9
le Elum	Lake Cle Elum	436.9	319.1	378.1	328.8	395.8
umping	Bumping Lake	33.7	31.0	17.5	29.7	30.6
ieton	Rimrock Lake	198.0	129.3	146.3	157.1	180.4
		PUGET SOUND				
kagit	Ross Reservoir	1404.1	1315.6	1323.1	890.8	1000.5
kagit	Diablo Reservoir	90.6	88.9	87.8	86.5	84.1
kagit	Gorge Reservoir	9.8	8.7	8.4	8.3	--

/ Based on Active Storage

15-year average 1953-67

SOIL MOISTURE - JUNE

rainage nd tation	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of June 1 1972	1971	1970
RAB CREEK							
ıck Woods	18B3m	2750	48	13.6	10.2	9.6	8.5
rause	18B4m	2420	48	13.6	9.0	8.7	8.7
ıeffels	18B5m	2380	48	13.6	9.9	9.1	8.6
ıerman	18B7m	2440	48	13.6	9.1	8.2	8.2
ıeatridge	18B6m	2290	48	13.6	10.0	--	8.4
KANOGAN							
ılmon Meadows	19A2M	4500	48	5.4	3.7	3.6	3.7
rout Creek	3-M	3600	48	7.3	5.6*	4.5	--
AKIMA							
ɔmery Flat	21B20m	2200	48	6.9	4.5	4.5	4.4
ıke Cle Elum	21B14M	2200	48	12.8	9.2	9.2	9.2
ALLA WALLA							
ɔuse	17C3m	3650	48	11.1	10.2	9.8	9.8
ɛlmers	17C2M	4400	48	12.0	10.9	10.1	9.7
ENATCHEE							
ɔper Wheeler	20B7M	4400	48	12.7	9.8	9.9	9.2

May 1 measurement

FALL SOIL MOISTURE

rainage Basin d tation	Number	Elev.	Profile Depth	(Inches): Total Capacity:	Soil Moisture Content (Inches) as of Oct. 1 1971	1970	1969
RAB CREEK							
ıck Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
rause	18B4m	2420	48	13.6	5.0	4.4	5.9
ıeffels	18B5m	2380	48	13.6	5.3	4.4	4.5
ıerman	18B7m	2440	48	13.6	4.0	3.8	4.2
ıeatridge	18B6m	2290	48	13.6	5.5	7.8	5.4
KANOGAN							
ılmon Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
rout Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
AKIMA							
ɔmery Flat	21B20m	2200	48	6.9	2.1	2.4	--
ıke Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
ALLA WALLA							
ɔuse	17C3m	3650	48	11.1	6.2	5.9	6.1
ɛlmers	18C2M	4400	48	12.0	8.2	7.3	7.1
ENATCHEE							
ɔper Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

Nov 1 measurements

PRECIPITATION [1/]
Division Averages and Departures

RAINAGE IVISIONS	FALL Sept-Oct 1971 [2/] Observed	Departure	WINTER Nov. '71 - Mar. '72 [2/] Observed	Departure	SPRING April-May '72 [2/] Observed	Departure
olumbia in Canada	4.45	+ 0.56	18.14	+ 5.45	3.21	+ .07
end Oreille - Spokane	4.63	+ 0.48	22.16	+ 3.91	4.82	+ .18
ortheastern Washington	3.16	+ 0.91	9.92	- 1.17	3.75	+ .43
outheastern Washington	3.73	+ 1.08	15.47	+ 3.06	4.39	+ .78
entral Washington	4.15	- 0.29	39.29	+12.16	3.37	- .06
orth Central Washington	1.99	+ 0.58	10.09	+ 3.75	2.99	+ 1.19
orthwest Slope Cascades	11.60	- 0.07	66.90	+14.76	11.25	+ 1.62
outhwest Slope Cascades	9.33	+ 1.61	54.96	+14.09	8.57	+ 1.53

ortheastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages.

outheastern Washington - Touchet, Tucannon and Palouse drainages

entral Washington - Yakima, Wenatchee and Chelan drainages

orth Central Washington - Methow and Okanogan drainages

orthwest Slope Cascades - Puget Sound drainages

outhwest Slope Cascades - Lower Columbia drainages

/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service

/ - Departure from 15-year (1953-67) drainage division average

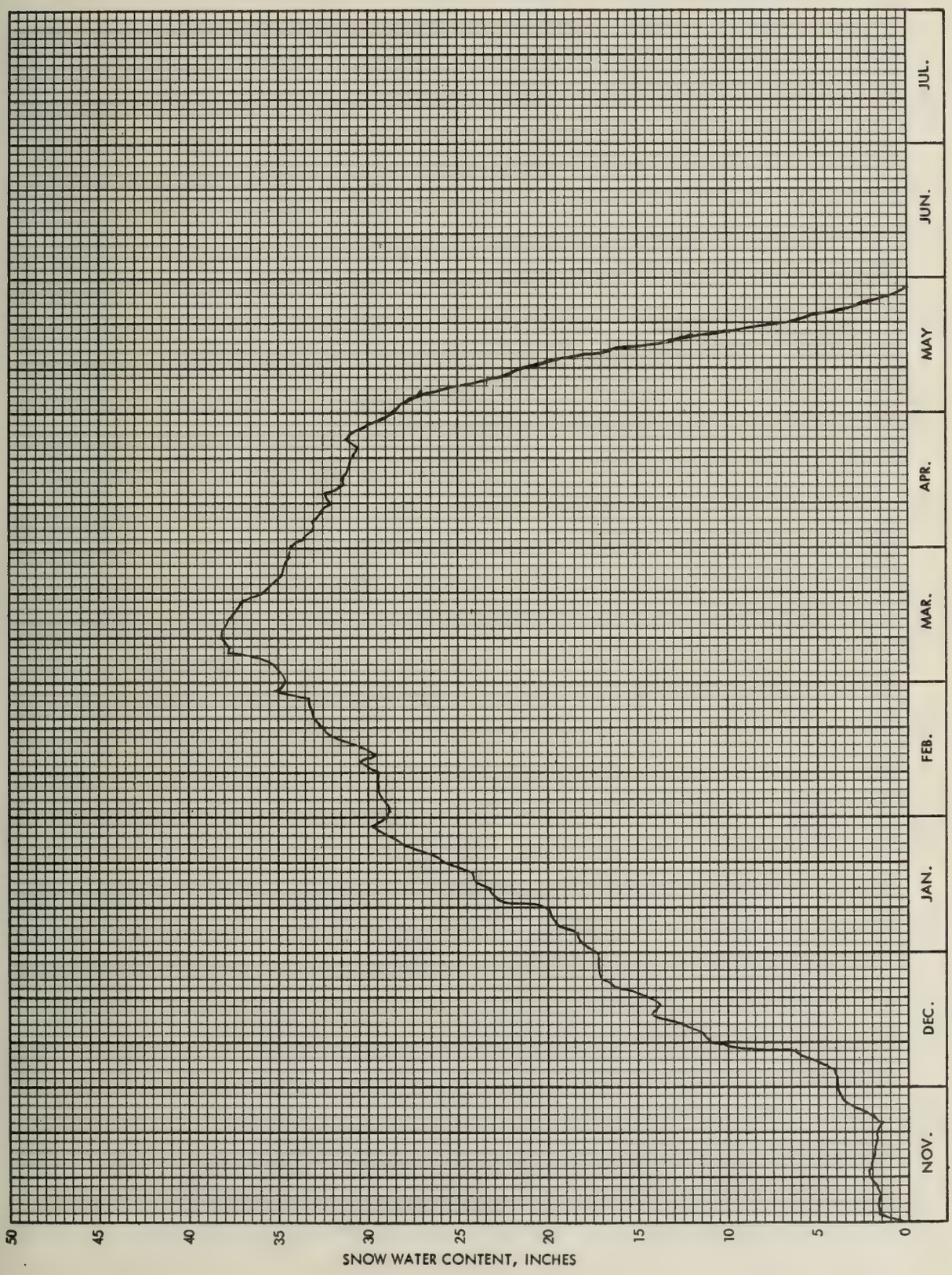
Berne-Mill Creek

SNOW PILLOW DATA

June 1, 1972

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River

Lat. 47° 45' Long. 121° 42' Elev. 3240'



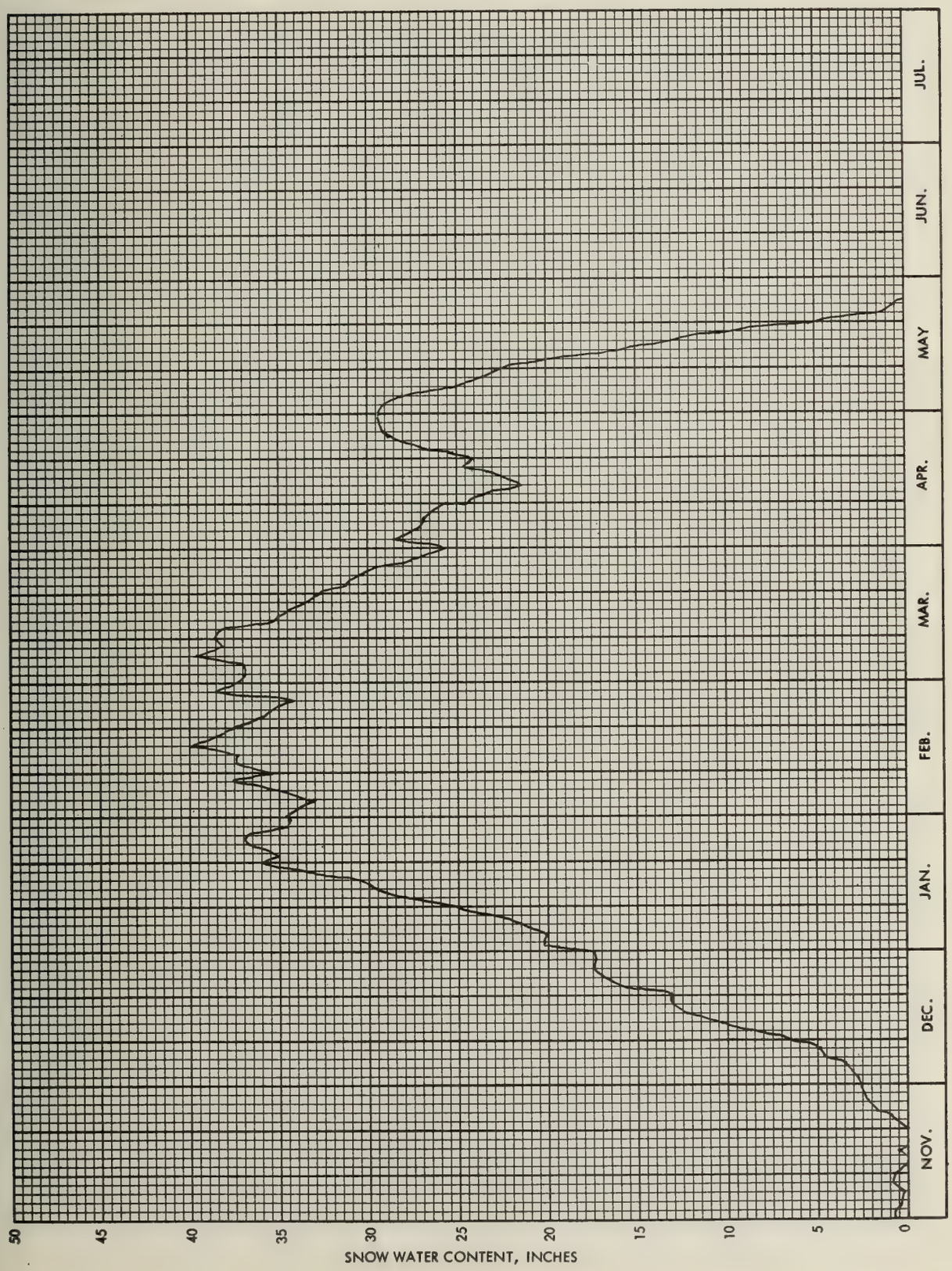
Cougar Mountain - FS

SNOW PILLOW DATA

June 1, 1972

Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



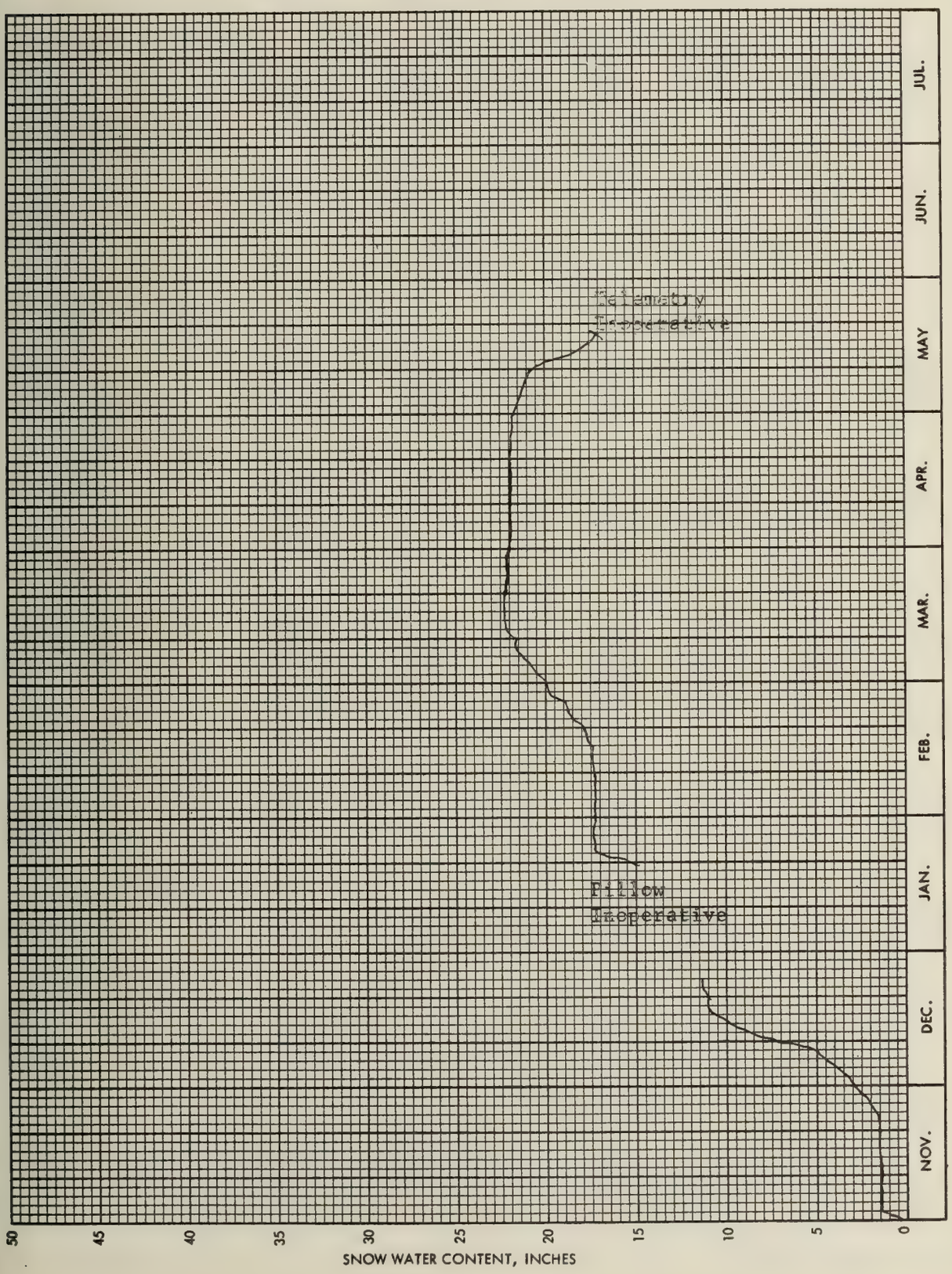
Trough No. 2

SNOW PILLOW DATA

June 1, 1972

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Wenatchee

Lat. 47° 14' Long. 120° 19' Elev. 5310'



APPENDIX 1

CORRECTIONS AND ADDITIONS - 1972 SNOW REPORTS

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
February 1							
ENTIAT RIVER							
Four Mile Ridge +	20B27a	7000	2/1	108	34.6	New aerial	
NOOKSACK RIVER							
Glacier Creek	21A23	3700	2/3	87	32.8	--	--
March 1							
OKANOGAN RIVER							
Clark +	19A8a	7000	3/1	90	29.7	22.7	18.0*
Muckamuck +	19A9a	6390	3/1	56	18.5	19.1	--
Starvation Mtn. +	19A10a	6750	3/1	66	21.8	20.5	17.7*
METHOW RIVER							
Harts Pass	20A5A	6500	3/8	186	62.6	49.6	38.5
YAKIMA RIVER							
Bumping Lake	21C8	3450	3/1	61	20.4	22.8	15.3
#Corral Pass	21C13	6000	3/4	174	65.2	45.8	33.2*
Lemah Creek +	21B47a	3327	3/7	156	65.5	49.4	--
Waptus Lake +	21B49a	3024	3/7	165	69.3	54.2	--
COWLITZ RIVER							
Cayuse Pass	21C6	5300	3/4	275	112.8	102.7	71.6*
Mosquito Meadows	21C19	4100	3/7	137	62.0	62.9	34.4*
WHITE RIVER							
Corral Pass	21C13	6000	3/4	174	65.2	45.8	33.2*
GREEN RIVER							
Snowshoe Butte SP	21B43SP	5000	3/7	221	95.0	64.0	--

\# Not located directly on this drainage

\+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
March 1 (Cont.)							
SKAGIT RIVER							
Beaver Creek Trail	21A4	2200	3/8	65	24.3	23.4	14.0*
Devils Park	20A4	5900	3/8	192	68.6	45.5	39.1
#Harts Pass	20A5A	6500	3/8	186	62.6	49.6	38.5
April 1							
OKANOGAN RIVER							
Clark +	19A8a	7000	4/1	96	35.5	29.9	23.1*
Muckamuck +	19A9a	6390	4/1	53	19.6	21.1	17.5*
Starvation Mtn. +	19A10a	6750	4/1	69	25.5	23.5	22.7*
ENTIAT RIVER							
Four Mile Ridge +	20B27a	7000	3/15	120	52.8	New aerial	
BAKER RIVER							
Mount Blum +	21A18a	5800	3/29	180	86.4	--	--
May 1							
OKANOGAN RIVER							
Muckamuck +	19A9a	6390	5/1	58	26.7	23.0	--
Starvation Mtn. +	19A10a	6750	5/1	78	35.9	27.1	25.1*
ENTIAT RIVER							
Four Mile Ridge +	20B27a	7000	4/15	108	51.8	New aerial	
			5/1	108	55.1		
Shady Pass	20A37	5000	4/28	106	54.2	37.4	--
YAKIMA RIVER							
Morse Lake	21C17	5400	4/27	183	87.8	102.6	62.4*

\# Not located directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 3

SNOW DATA MAY 1 to JUNE 1, 1972

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/15	107	61.2	39.8	43.4
Baree Midway	15B16	4600	5/15	70	37.6	25.4	26.8
Baree Trail	15B15	3800	5/15	0	0.0	0.0	0.0
Heart Lake Trail	14C10	4800	5/16	50	26.2	14.0	--
			6/1	11	6.1	2.0	--
Hoodo Basin	15C10	6000	5/16	153	83.4	55.2	--
			6/1	110	63.4	42.3	--
Hoodo Creek	15C1	5900	5/16	145	79.2	52.7	42.5
			6/1	106	61.4	42.4	32.0
Lookout	15B2	5250	5/15	84	47.0	39.5	28.4
			6/1	46	25.3	18.2	--
Nelson	Canada	3050	5/12	5	2.4	1.0	0.8**
Schweitzer Bowl	16A6	4500	5/31	0	0.0	0.0	--
Schweitzer Ridge	16A5	6100	5/31	62	34.8	39.2	--
KETTLE RIVER							
Big White Mountain	Canada	5500	5/14	53	23.0	17.9	17.6**
			5/30	22	11.4	11.2	9.3**
Carmi	Canada	4100	5/14	0	0.0	0.0	--
			Not Measured			0.0	--
Lower Trapping Cr.	Canada	3050	5/14	0	0.0	0.0	0.0**
			Not Measured			0.0	--
#Monashee Pass	Canada	4500	5/15	29	14.0	4.7	9.4**
			5/29	12	5.8	0.0	--
Old Glory Mountain	Canada	7000	5/13	80	33.6	25.6	28.8**
			5/27	61	31.1	15.9	17.6**
Upper Trapping Cr.	Canada	5500	5/14	0	0.0	0.0	0.6**
			Not Measured			0.0	--
SPOKANE RIVER							
Granite Peak	15B13A	6000	5/28	116	57.4	46.0	--
#Lookout	15B2	5250	5/15	84	47.0	39.5	--
			6/1	46	25.3	18.2	--
Lost Lake	15B14A	6000	5/28	161	83.0	55.0	--
Medicine Ridge	15B4A	6150	5/28	121	61.0	45.4	--

\# Not located directly on this drainage

** Average for years of record

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
OKANOGAN RIVER							
Blackwall Peak	Canada	6250	5/11	124	61.0	43.5	36.6**
			5/30	90	49.8	39.0	28.7**
Bouleau Lake	Canada	4500	5/28	17	4.6	--	--
Bouleau Creek	Canada	5000	5/14	27	10.7	--	5.5**
Brookmere	Canada	3200	5/15	18	8.2	2.0	2.3**
			5/30	0	0.0	2.0	--
Enderby	Canada	6250	5/8	132	55.6	46.8	44.5**
			5/29	101	48.9	38.3	39.9**
Hamilton Hill	Canada	4900	5/27	29	15.8	0.0	1.0**
Isontok Lake	Canada	5510	5/13	35	15.1	1.0	3.3**
			5/27	18	8.3	--	--
Lost Horse Mountain	Canada	6300	5/11	58	22.7	8.2	9.6**
			Late Report			4.2	3.5**
Lower Esperon Cr.	Canada	4270	5/15	17	7.2	0.0	0.2**
			5/27	0	0.0	0.0	--
McCulloch	Canada	4200	5/10	4	1.4	0.0	0.6**
			5/25	0	0.0	--	--
Middle Esperon Cr.	Canada	4580	5/15	23	9.8	4.6	2.5**
			5/27	0	0.0	--	--
Missezula Mountain	Canada	5100	5/27	0	0.0	--	0.0
Mission Creek	Canada	6000	5/12	65	27.4	17.5	18.8**
			5/26	44	21.7	15.3	11.1**
Monashee Pass	Canada	4500	5/15	29	14.0	4.7	9.4**
			5/29	12	5.8	0.0	1.9**
Mount Kobau	Canada	5950	5/15	42	17.0	9.7	9.7**
			6/1	16	5.4	1.1	1.7**
New Copper Mountain	Canada	4300	5/11	3	1.3	--	--
New Penticton Res.	Canada	6200	5/12	32	13.0	--	--
Nickel Plate Mtn.	Canada	6200	5/14	41	15.8	4.6	6.4**
			5/30	24	10.6	2.3	4.6**
Postill Lake	Canada	4500	5/11	17	7.1	--	3.8**
#Quartette Lake	Canada	4000	5/26	37	18.5	--	--
Silver Star Mtn.	Canada	6050	5/13	82	40.0	22.5	25.1**
			5/27	60	32.6	13.9	14.4**
Summerland Res.	Canada	4200	5/13	18	8.6	0.7	1.7**
			5/27	1	0.6	--	--
Trout Creek	Canada	4700	5/11	30	12.1	0.7	1.2**
			5/24	10	4.5	--	--
Brenda Mine	Canada	4800	5/12	30	14.5	0.0	0.0**
			Late Report			0.0	0.0**

Not located directly on this drainage
** Average for years of record

1/ *Average based on 1953–67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22026-D

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (Inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
OKANOGAN RIVER (Cont.)							
Upper Esperon Cr.	Canada	5290	5/27	21	10.5	--	--
White Rocks Mtn.	Canada	6000	5/12	68	32.5	--	--
			5/26	44	22.3	--	--
Vaseux Cr.	Canada	4050	5/14	4	1.0	--	--
ENTIAT RIVER							
Entiat Meadows +	20A33a	4800	5/16	94	49.8	47.6	--
			5/31	70	42.0	32.9	--
Entiat River Trail +	20A34a	3150	5/16	0	0.0	6.0	--
			5/31	0	0.0	0.0	--
Four Mile Ridge +	20B27a	7000	5/10	102	54.1	New aerial	
			5/31	60	36.0	--	--
Fox Camp +	20A36a	6510	5/16	156	82.7	69.4	--
			5/31	122	73.2	67.8	--
Pope Ridge	20B20	4300	5/12	6	3.3	2.5	--
			Not Measured			0.0	--
Pugh Ridge +	20A32a	6400	5/16	101	53.5	30.3	--
			5/31	75	45.0	24.9	--
Shady Pass	20A27	5000	5/15	86	45.5	19.6	--
			6/1	45	27.0	--	--
Snow Brushy +	20A35a	3850	5/16	60	31.8	30.3	19.9*
			5/31	33	19.8	16.2	--
Tommy Creek +	20B21a	5300	5/16	26	13.8	12.9	9.2*
			5/31	12	7.2	2.8	--
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	5/26	26	14.8	--	--
Stevens Pass	21B1	4070	5/15	142	80.1	68.1	46.6
			5/26	124	75.9	58.6	31.2*
Stevens Pass S. Shed	21B45	3700	5/15	74	42.5	34.5	--
			5/26	56	32.8	24.7	--
YAKIMA RIVER							
Bumping Lake	21C8	3450	5/14	8	4.4	10.5	--
Bumping Lake New	21C36	3400	5/14	20	11.4	16.9	--

\+ Snow water equivalent estimated from aerial stadia observation
* Adjusted 1953-67 average

1/ *Average based on 1953-67 average.*

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22020-D

APPENDIX 6

NAME	No.	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (Inches): Last Year	Average 1/
YAKIMA RIVER (Cont.)							
Joe Lake +	21B46a	4624	5/30	204	120.4	--	--
Lemah Creek +	21B47a	3327	5/30	27	15.9	--	--
Olallie Meadows	21B2	3625	Not Measure			66.3	--
Stampede Pass	21B10	3000	5/15	118	45.0	57.2	34.8
			6/1	76	43.6	42.4	18.5*
Tunnel Avenue	21B8	2450	5/16	39	19.5	20.8	--
			5/31	6	3.4	--	--
Van Epps Pass +	20B26a	5925	5/30	144	85.0	--	--
Waptus Lake +	21B49a	3024	5/30	45	26.6	--	--
White Pass E. Side	21C28	4500	5/15	84	46.1	31.6	23.0*
			6/1	53	33.1	--	12.7*
White Pass L. Lake	21C27	4500	Not Measured			31.5	
COWLITZ RIVER							
Pigtail Peak	21C33	5900	5/15	208	119.2	93.8	--
			6/1	171	103.8		
White Pass E. Side	21C28	4500	5/15	84	46.1	31.6	23.0*
			6/1	53	33.1	--	12.7*
White Pass L. Lake	21C27	4500	Not Measured			31.5	
PUGET SOUND DRAINAGE							
GREEN RIVER							
Cougar Mtn. SP	21B42SP	3200	Not Measured			5.2	--
Snowshoe Butte SP	21B43SP	5000	Not Measured			76.6	--
Stampede Pass	21B10	3000	5/15	118	45.0	57.2	34.8
			6/1	76	43.6	42.4	18.5*
SNOQUALMIE RIVER							
Olallie Meadows	21B2	3625	Not Measured			66.3	--
SKYKOMISH RIVER							
Stevens Pass	21B1	4070	5/15	142	80.1	68.1	46.6
			5/26	124	75.9	58.6	31.2*
Stevens Pass S. Shed	21B45	3700	5/15	74	42.5	34.5	--
			5/26	56	32.8	24.7	--

\+ Snow water equivalent estimated from aerial stadia observation
\# Not located directly on this drainage
* Adjusted 1953-67 average

Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-D

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average 1/
SKAGIT RIVER							
Klesilkwa	Canada	3700	5/15	38	19.3	--	--
New Tashme	Canada	2500	5/11	18	8.3	--	--
Quartette Lake	Canada	4000	5/13	49	21.4	--	--
			5/26	37	18.5	--	--
BAKER RIVER							
Baker Pass +	21A27	4900	Not Measured			--	--
						--	--
Dock Butte +	21A11A	3800	Not Measured			--	82.9*
			5/31	140	77.0	--	66.1*
Easy Pass	21A7A	5200	Not Measured			--	108.0*
			5/31	168	92.4	--	--
Jasper Pass	21A6A	5400	Not Measured			--	112.7*
			5/31	140	77.0	--	--
Marten Lake	21A9A	3600	Not Measured			--	76.3*
			5/31	165	90.8	--	65.1*
Mount Blum +	21A18a	5800	Not Measured			--	--
			5/31	150	82.5	--	--
Rocky Creek +	21A12A	2100	Not Measured			--	--
			5/31	0	0.0	--	--
Schreibers Meadow +	21A10A	3400	Not Measured			--	69.8*
			5/31	130	71.5	--	--
S. F. Thunder Creek +	21A14A	2200	Not Measured			--	--
						--	--
Watson Lakes +	21A8A	4500	Not Measured			--	81.7*
			5/31	144	79.2	--	68.8*

1/ Average based on 1953–67 average.

USDA-SCS-PORTLAND, OREG. 1971 M7-0-22028-0

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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